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Organizational Health and Student Achievement Gains in Elementary Schools

Christopher Lee Henderson
University of Tennessee - Knoxville

To the Graduate Council:

I am submitting herewith a dissertation written by Christopher Lee Henderson entitled "Organizational Health and Student Achievement Gains in Elementary Schools." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Education, with a major in Educational Administration.

Vincent A. Anfara, Major Professor

We have read this dissertation and recommend its acceptance:

Ernest W. Brewer, Schuyler W. Huck, Gerald C. Ubben

Accepted for the Council:

Carolyn R. Hodges

Vice Provost and Dean of the Graduate School

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ORGANIZATIONAL HEALTH AND STUDENT ACHIEVEMENT GAINS IN ELEMENTARY SCHOOLS

A Dissertation

Presented for the Doctor of Education

Degree

The University of Tennessee, Knoxville

Christopher Lee Henderson

August 2007

DEDICATION

To Mom and Dad

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ABSTRACT

With increasing pressures to improve student performance, schools are in need of ways to positively affect student achievement that they can control. The concept of organizational health, which includes academic emphasis, teacher affiliation, collegial leadership, resource influence, and institutional integrity, offers educators an opportunity to gauge the climate of their building and in turn positively affect academic outcomes. Using Hoy and Tarter's (1997) concept of organizational health in elementary schools as a conceptual framework, this study undertook a mixed method approach to examining the relationship between organizational health and student achievement gains in elementary schools. The Organizational Health Inventory-Elementary Version, a 37 item four-point Likert survey, was given to a sample of 25 elementary schools from a southeastern metropolitan school district. The results of the survey were analyzed with value-added student achievement gains using the Pearson Product Moment Correlation Coefficient. Quantitative analysis revealed inverse relationships between organizational health, the subcategory academic emphasis, and student achievement gains. A direct relationship was found between organizational health and institutional integrity. Interviews and observations were performed at four of the schools, which were selected through purposeful sampling. These schools were selected based on their survey results and value-added achievement scores. Data from the interviews and observations were analyzed according to Merriam's (1998) constant comparative method. Qualitative data served to verify and expand upon the quantitative findings.

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CHAPTER I

INTRODUCTION

Schooling influences every person in the United States. Some of the indirect effects include the expenditure of tax dollars, the allocation of other resources, and the preparedness of the workforce. The most direct impact relates to the students and the teachers within the school buildings. Schools provide society with fuel for survival, and therefore much effort is focused on determining whether the educational experience facilitates student achievement. Much controversy embroils discussions on how to judge the effectiveness of schools. Some state that a school's effectiveness can be measured by a test score. Others feel that the future productivity of students is a statement of the success of a school. Still others believe that a school's success cannot be calculated in quantifiable terms at all. Nonetheless, standardized testing has become one measure of the success or lack of success of learning.

With pressure increasing from local, state, and federal levels, schools often find themselves struggling to keep pace with the demands of maintaining high student achievement on standardized tests. Compounding the tension are myriad factors that can influence students' performance on such instruments (Amerlin & Berliner, 2003). Aspects such as socioeconomic status, school climate, and teacher affiliation can all affect the performance of students on tests that hold increasing significance for schools (Flanigan, Marion, & Richardson, 1997; Sweetland & Hoy, 2000; Tsui & Cheng, 1999). Some of these factors fall beyond the influence of the school. For example, socioeconomic status has been shown to correlate strongly with the achievement of

students; schools in more affluent settings usually attain higher achievement test scores (Flanigan et al.; Nyhan & Alkadry, 1999; Papanastasiou, 2000; Willie, 2001). However, schools cannot control the economic make-up of their surrounding communities. Fortunately, schools do have some control over some other things that have shown a relationship with student achievement.

One such factor is the organizational health of the school. Studies have found a positive correlation among organizational health factors and student achievement (Brown, Roney, & Anfara, 2003; Browne, 2002; Goddard, Sweetland, & Hoy, 2000; Green, 2000; Hill, 2003; Hoy & Hannum, 1997; Hoy, Tarter, & Bliss, 1990; Smith, 2002; Valente, 1999). Even when strongly influential variables such as socioeconomic status were controlled, organizational health was shown to have a direct positive relationship with the achievement of students. Therefore, the association described by this concept may help provide a direction for improving the practices of schools and for supporting student learning.

Organizational health can be understood as a metaphor for climate. Schools can either have a healthy or unhealthy climate. Much like a person, schools can go through periods of poor health. However, the overall health of a school remains stable. Just as a healthy person often avoids the maladies commonly found in unhealthy individuals, schools with good health enjoy positive benefits. A healthy school has high academic emphasis, an orderly learning environment, teachers who enjoy and are empowered by their jobs, an instructional leader, enough resources, and freedom from negative external

influences on the operation of the school. The concept of organizational health provides a simple framework for improving school organizations (Hoy & Hannum, 1997).

Organizational health has been defined through the research of Hoy and his colleagues (Goddard et al., 2000; Hoy & Feldman, 1987; Hoy & Hannum, 1997; Hoy et al., 1990; Sweetland & Hoy, 2000). Building on the work of Miles (1969), Etzioni (1975), and Parsons, Bales, and Shils (1953), Hoy and his colleagues cite five components of organizational health in elementary schools. The first is academic emphasis, an idea that encompasses high academic standards for students of all abilities, extra help for students, and respect for academic success. The second area has been identified as teacher affiliation. This area refers to a teacher's sense of connection to the institution. Optimally, in a healthy school, teachers would relate in a friendly, enthusiastic atmosphere. The researchers identify the third area of organizational health in elementary schools as resource influence. This is the principal's ability to influence his or her superiors in order to benefit the teachers and to ensure teachers have materials necessary for their tasks. The fourth component is called collegial leadership. Collegial leaders are friendly, open, approachable, and fair while setting high standards for performance. The final area of organizational health is institutional integrity. This is the school's ability to withstand unreasonable external demands, for example, those placed by teachers, parents, or community organizations. The constellation of the five factors of academic emphasis, teacher affiliation, resource influence, collegial leadership and institutional integrity describe the concept of organizational health.

The focus of this study was to examine the organizational health of the elementary schools in a metropolitan school system in relation to the academic gains made by students at those schools. To quantify the gains of the students, data from the Tennessee Value-Added Assessment System (TVAAS) were used. TVAAS provides data on the achievement gains of students in grades four through eight for the State of Tennessee.

TVAAS was created by Sanders of The University of Tennessee. It is comprised of a longitudinally merged database that houses student test scores on the Tennessee Comprehensive Assessment Program (TCAP). The TCAP is an annual criterion referenced test covering math, reading, language arts, science, and social studies. Through the use of mixed-model statistical methods, TVAAS provides information on the academic growth of students from year to year. The growth of individual students is combined to show how much effect systems, schools, and teachers have on student achievement gains. For schools and systems, these gains are translated into grades for each of the subjects tested by the TCAP.

While the statistical methodology behind TVAAS is quite complex, it is based on the simple assumption that a student's academic growth can be measured by comparing where the student began academically and where he or she was after a year of instruction. By using each student as his or her own control, TVAAS controls for variables such as socioeconomic status and prior achievement that typically confound efforts to use standardized test data as means to judge the performance of schools (Ballou, Sanders, & Wright, 2004). Furthermore, through the use of mixed-model statistical methodology,

fragmented records need not be discounted when calculating value added scores. No matter how incomplete a record of the individual student, TVAAS can make use of the parts that exist (Sanders, Saxton, & Horn, 1997).

Statement of the Problem

Schools are charged with the difficult task of maintaining high student achievement test scores even though many of the factors influencing those scores are beyond the control of the school (Amerlin & Berliner, 2003). Schools need practical, effective methods of increasing their students' achievement. The concept of organizational health offers a method of assessing many variables within the control of the school that have been shown to relate positively with student achievement. Schools can control these factors for the benefit of the students and facilitate greater academic gains in their students by doing so. A consideration of the organizational health of elementary schools and the academic achievement gains of students in those institutions would confirm this relationship.

Purpose of the Study

The purpose of the mixed-methods study was to explore the relationships among organizational health factors and student achievement gains in the elementary schools of a southeastern metropolitan school system.

Research Questions

1. Quantitative: What is the relationship among organizational health factors (Academic Emphasis, Teacher Affiliation, Collegial Leadership, Resource Influence, and

Institutional Integrity) and student achievement gains in the elementary schools of a southeastern metropolitan school system? H_o: $\rho = 0$

2. Qualitative: What is the nature of organizational health factors at healthy and unhealthy schools?

Definitions

Three terms used throughout this study are Organizational Health, Tennessee Comprehensive Assessment Program, and Tennessee Value-Added Assessment System. They are defined as follows.

1. Organizational Health: Organizational health is a metaphor for understanding school climate. Its factors include academic emphasis, teacher affiliation, collegial leadership, resource influence, and institutional integrity.
2. Tennessee Comprehensive Assessment Program (TCAP): The TCAP is a criterion-referenced test given to students in grades three through eight in the state of Tennessee annually.
3. Tennessee Value-Added Assessment System (TVAAS): TVAAS is a process for measuring the effects that school systems, schools, and teachers have on the academic growth in math, reading, language, science, and social studies of students in grades four through eight (Sanders et al., 1997)

Limitations and Delimitations

Limitations

This study is limited because of the research method being employed. Since it is a correlation study, the researcher will be unable to infer causation among any of the

variables under scrutiny. The research is also limited by the use of a self-report survey. The use of this instrument may lessen the ability to generalize the findings to a broader population. Another limitation of the study is that the TVAAS only provides value-added gain scores for students in grades four through eight. Therefore, for every elementary school, approximately half of the achievement gains made by students were not taken into account.

Delimitations

This study has been delimited to one metropolitan school system in the southeastern United States. It has also been delimited to 25 elementary (K-5) and intermediate (3-5) schools. Primary schools, serving grades kindergarten through second are not included in the study because they do not receive value-added test data. Another delimitation is that the researcher only examined academic effectiveness, as opposed to social or emotional effectiveness, in relation to organizational health. A further delimitation of this study is the use of value-added data to determine the academic gains of a school.

Significance of the Study

With the increasing pressures on schools to improve standardized test scores, school leaders must find effective methods for ensuring students' success. Organizational health has been shown to correlate positively with student achievement (Brown et al., 2003; Browne, 2002; Goddard et al., 2000; Green, 2000; Hill, 2003; Hoy & Hannum, 1997; Hoy et al., 1990; Smith, 2002; Valente, 1999). Of this research, though, few studies have focused on the entire concept of organizational health in the elementary school

setting. Furthermore, only one study (Henderson et al., 2005) exists in which organizational health and value added achievement gains are examined for relationships. This study was performed at the middle school level. I contributed to this research base by examining the relationship between organizational health and the achievement gains of students in elementary schools.

CHAPTER II

REVIEW OF THE LITERATURE

Attempts to pinpoint factors related to school effectiveness abound. The concept of organizational health provides a comprehensive and informative model of a school's well-being. The following sections contain a review of five areas of the educational literature concerning the topic of organizational health as related to student achievement in elementary schools. First, the general topic of school climate is discussed. Next, I elaborate specifically on the metaphor of organizational health in schools. Then the literature concerning the development of the Organizational Health Inventory for Elementary Schools (OHI-RE) is relayed. Subsequently, studies specifically linking organizational health and student achievement are reported. Finally, the literature concerning the Tennessee Value-Added Assessment System is reviewed. The significance of this study in relation to the literature is also discussed.

School Climate

The concept of organizational climate surfaced around 1950 (Hoy, Tarter, & Kottkamp, 1991). Researchers in the business field soon recognized the potential benefits of the idea and began to apply aspects of a positive organizational climate to the benefit of corporations (Hoy et al.). Tagiuri (1968), a researcher in the field of business, provides the clearest definition of organizational climate. He defines climate as "a particular configuration of enduring characteristics of the ecology, milieu, social system, and culture" (p. 23). He further explains the concept by comparing the climate of an organization to the personality of an individual. Hoy, Tarter, and Kottkamp make the

same comparison, stating, "climate is to organization as personality is to individual" (p. 3). Hodgetts (2002) compares organizational climate to the weather, stating that it can change from day to day. Still another metaphor for describing climate comes from Croft and Halpin (as citied in Hoy et al.). They describe climate as being open or closed, as individuals can be open-minded or closed-minded.

Sweetland and Hoy (2000) take a different approach to climate, though. They define school climate as "a stable set of organizational characteristics that capture the distinctive tone or atmosphere of a school" (p. 705). Sweetland and Hoy discuss the four aspects of school climate delineated by Poole. He states that climate is characteristic of the entire organization, that it is based on the perceptions of all of the members of the organization, and that it influences the behaviors and attitudes of those members. Many authors agree that school climate consists of the collective understandings held within an organization, and it can have a lasting impact on the operation and effectiveness of a school (Goddard, Sweetland, & Hoy, 2000; Hill, 2003; Hoy & Feldman, 1987; Hoy & Hannum, 1997; Hoy, Tarter, & Bliss, 1990; Hoy & Woolfolk, 1993; Sweetland & Hoy).

Several researchers have examined the effects that school climate has on the achievement of students (Armstrong, 1999; Bossert, 1988; Brookover et al., 1978; Coleman et al., 1966; Good & Weinstein, 1986; Hoy & Ferguson, 1985; Huang, Waxman, & Wang, 1995; Jansen, 1995; Mayer, Mullens, & Moore, 2001; Munoz & Dossett, 2001; Nyhan & Alkadry, 1999; Sweetland & Hoy, 2000; Wilson, Abbott, Joireman, & Stroh, 2002). Most of the studies concur that school climate has some relationship with student achievement. A positive school climate will have positive

impacts on the achievement of students in a school (Armstrong; Bossert; Brookover et al.; Good & Weinstein; Hoy & Ferguson; Huang, Waxman, & Wang; Jansen; Mayer, Mullens, & Moore; Munoz & Dossett; Nyhan & Alkadry; Sweetland & Hoy; Wilson, Abbott, Joireman, & Stroh).

Initially, the research focused on input/output processes. Researchers were interested in discovering whether the amount of resources (money, library books, and teacher salaries, for example) was related to the output of the school (student achievement) (Jansen, 1995). Two landmark studies (Coleman et al., 1966; Jencks et al., 1972) concluded that the inputs into a school do not make a difference in the outcomes. They reported that much of the difference in student achievement is accounted for by socioeconomic factors, race, and other background variables. The effects of a school on student achievement compared to these factors were considered negligible. No matter how many resources were devoted to a school, there would be little to no effect on student achievement.

In another landmark study, Brookover et al. (1978) answered the assertion made by Coleman et al. (1966) and Jencks et al. (1972) by finding that not all of the variance in student achievement can be accounted for by factors outside of the control of schools. Using one of the factors from Coleman et al. called student sense of futility, Brookover et al. demonstrated that schools did have an impact on student achievement. This groundbreaking research was followed in the decades to come with more complex studies using hierarchical linear modeling and multiple regression analyses to factor out variables like socioeconomic status and race (Jansen, 1995).

The current literature on school climate revolves around two distinct, but compatible, metaphors for organizational climate. One of these metaphors comes from a strong empirical background, while the other is based more in theory. One of the metaphors, proposed by Croft and Halpin (as cited in Hoy & Tarter, 1992), compares organizational climate to personality. They view the climate of an organization on a continuum ranging from open to closed, much as a person can be open or close-minded. A school with an open climate is welcoming of new ideas. The teachers are innovative and efficacious. In a school with a closed climate, the opposite is true. The teachers hold low expectations of their students, and nobody truly wants to be in the building. In line with the personality metaphor, Croft and Halpin developed the Organizational Climate Descriptor Questionnaire (OCDQ), which in turn spawned several studies concerning school climate. Unfortunately, though, the OCDQ contained many flaws that limited its usefulness (Hoy et al., 1990). For example, Hoy et al. point out that studies that employed the OCDQ frequently obtained conflicting results, and despite the requests of Croft and Halpin, no one revised the OCDQ until recently.

The Concept of Organizational Health

Hoy and his colleagues (Goddard et al., 2000; Hoy & Feldman, 1987; Hoy & Hannum, 1997; Hoy et al., 1990; Sweetland & Hoy, 2000) developed a second metaphor to describe the concept of organizational climate, which they call organizational health. The concept of organizational health is a mixture of ideas from Parsons et al. (1953), Miles (1969), and Etzioni (1975).

Miles (1969) was the first to relay the concept of organizational health into schools (Hoy et al., 1990). He theorized that healthy organizations are those that not only survive in their respective environments, but also thrive and grow over a long period. Miles postulated that such an organization would fulfill three sets of needs: task needs, maintenance needs, and growth and development needs. Furthermore, Miles stated that healthy organizations have ten common characteristics. He categorized these characteristics according to which need they help to meet.

Task needs concern how information is transmitted and how goals are set. Healthy organizations have three characteristics that help them effectively fulfill their task needs. The first characteristic is goal focus, or the need for the goals to be understood, accepted, and attainable by the members of the organization. Communication adequacy designates the second characteristic. Organizations must have an effective movement of information throughout the group. This involves a rapid understanding of changes in the state of the organization. The final characteristic refers to optimal power equalization, which means that power and influence are distributed equitably. Subordinates feel that they can influence the decisions of their superiors and they believe that their immediate bosses can affect their superiors (Miles, 1969).

Maintenance needs, which concern the internal operation of the organization, make up the second set of organizational requirements. Miles (1969) includes three characteristics under this category. The first of these is resource utilization. It has to do with efficiency in the sense that workers do not feel that their efforts are wasted. They should obtain some satisfaction and even self-actualization from the work they do. Next,

the characteristic of cohesiveness should be present. This refers to the organization knowing itself. Members should know what the organization stands for and their place in it. Morale is the next feature, which revolves around an individual's sense of well-being and satisfaction within the organization (Miles, 1969).

Growth and development comprise the third and final set of needs of a healthy organization. These needs deal with change in the organization. Four characteristics fall under this category. One can be described as innovativeness. The organization develops new goals and new procedures for acquiring them. The next characteristic is autonomy, or an organization that is not passively subject to the environment. The organization has some control over its situation and demonstrates that control as needed. The third growth and development characteristic consists of adaptation. In other words, the organization has the ability to evolve in accordance with the demands of the environment. The final characteristic of a healthy organization is problem-solving adequacy. This refers to an organization's ability to solve problems efficiently and with little or no harm to the organization (Miles, 1969). Miles' ten characteristics of healthy organizations and their categorization under the three sets of needs are summarized in Figure 1.

Researchers such as Kimpston and Sonabend (as cited in Hoy & Ferguson, 1985) attempted to turn the heuristic developed by Miles (1969) for thinking about schools into an assessment device. Their attempts to develop a reliable and useful instrument failed for a variety of reasons, though. Not until Hoy and his colleagues (Hoy & Feldman, 1987; Hoy & Ferguson, 1985; Hoy et al., 1991) combined the ideas of Miles with those of the sociologists Parsons, Bales, and Shils (1953) and Etzioni (1975) did a viable way to

Task Needs (concerning communication and goal setting)

1. Goal Focus – clear, understood, and attainable goals
2. Communication Adequacy – quick and accurate understanding of organization's condition
3. Optimal Power Equalization – power is equitably distributed, subordinates can influence their immediate superiors, and feel that their bosses can do the same

Maintenance Needs (concerning the internal workings of the organization)

4. Resource Utilization – match of needs and demand, workers are neither over or under loaded
5. Cohesiveness – members have a sense of attachment and affiliation to the organization
6. Morale – members are satisfied and the group is generally happy

Growth and Development Needs (concerning change)

7. Innovativeness – new goals are developed along with new procedures to meet them
8. Autonomy – the organization is independent from the environment
9. Adaptation – the organization can grow and develop with according to the demands of changing situations
10. Problem-Solving Adequacy – problems are solved efficiently and with little harm to the organization

Figure 1. Miles's (1969) Conceptualization of Healthy Organizations.

measure organizational health surface. In the following sections, the process by which Hoy and Ferguson (1985) applied the work of Parsons et al. and Etzioni to Miles's concept of healthy organizations is discussed.

Parsons et al. (1953) stated that in order for organizations to survive, grow, and prosper, they must solve the four basic problems of adaptation, goal attainment, integration, and latency. Etzioni (1975) later grouped these four problems into two broader categories of instrumental and expressive activities.

The instrumental activities include adaptation and goal attainment and involve input and allocation. Those actions are the means that schools apply to accommodate changes in the external environment and facilitate reaching goals. This would involve the development, communication, achievement, and measurement of goals. In a school, examples of instrumental activities are achievement, teaching and learning, and resources for teaching (Uline, Miller, & Tschannen-Moran, 1998).

Expressive activities promote the meaning of the organization and include integration, and latency. They give understanding to the culture of the organization, its values and traditions. They foster trust and excellence in the organization. In a school, such activities would relay a sense of academic emphasis, collegiality, ownership in learning, and commitment to students (Uline et al., 1998). The expressive activities create solidarity within a school and they preserve a unique culture (Hoy & Feldman, 1987). Hoy and Feldman clarify these actions while relating them to school practices. They state that schools must acquire sufficient resources and accommodate their environment

(adaptation), set and implement goals (goal attainment), maintain solidarity within the school (integration), and maintain a value system (latency).

Parsons et al. (1953) theorized that organizations have three methods used to control the needs of adaptation, goal attainment, integration, and latency. Those three methods exist on the technical, managerial, and institutional level. Translating those strategies to schools, Hoy and Feldman (1987) discuss the technical, managerial, and institutional levels of control. The technical level in schools consists of the teaching and learning processes that occur in the institution. Teachers are responsible for providing effective educational practices to their students. The managerial level deals with the administrative functions within a school. The principal must develop a shared sense of commitment within the staff, and he or she must have the ability to influence their superiors for the betterment of the school. The institutional level revolves around the connection between the school and its environment. Schools are faced with the difficult task of obtaining the support of the community while still maintaining its integrity against unreasonable demands (Hoy & Feldman).

Hoy and Feldman (1987) initially narrowed the ten characteristics of healthy schools posited by Miles (1969) to seven. Those seven areas include institutional integrity (autonomy/adaptation), principal influence (optimal power equalization), consideration (communication adequacy), initiating structure (goal focus), resource support (resource utilization), morale (morale/cohesiveness), and academic emphasis (goal focus). In later studies, consideration is referred to as collegial leadership, and morale is called teacher affiliation.

Additionally, Hoy and Feldman (1985) aligned their seven areas of school health whittled from Miles' (1969) list of ten with Parson et al.'s (1953) four functions of social systems, their three levels through which organizations perform those functions, and Etzioni's (1975) two categories of activities undertaken to perform them. Under the technical area of control fall the processes concerned with teaching and learning. It focuses on things like academic press, an orderly learning environment, morale, and trust. Two of the seven areas of emphasis fall under the school's technical level of control. The first is academic emphasis. This refers to high standards being set for all students, respect and recognition for student achievements, and an orderly and serious learning environment. The second area is morale. This refers to the sense of collegiality and friendliness among the staff members. The teachers are committed to their students and their colleagues, and they are enthusiastic about performing their jobs (Hoy & Hannum, 1997).

The managerial level of control deals with the behavior of the principal. Four areas come under the managerial level. The first involves consideration, which is supportive, open, and fair behavior by the principal. The second area consists of resource support. This refers to the ready availability of adequate supplies and other materials for the teachers. The third area is principal influence, which means that the principal can influence his or her superiors for the betterment of the school. The fourth area under the managerial level of control includes initiating structure, which is task- and achievement-oriented behavior by the principal, holding high expectations of success and clearly delineating procedures (Hoy et al., 1991).

The institutional level of control refers to the outside environment. It has to do with the ability of the school to withstand unreasonable demands placed on it by outside forces, especially special interest groups (Hoy & Hannum, 1997).

The relationship among the three frameworks used in the development of Hoy and Ferguson's (1985) concept of organizational health in schools is depicted in Figure 2. The instrumental activities (Etzioni, 1975) of an organization function in terms of goal achievement and adaptation (Parsons et al., 1953). The expressive activities (Etzioni) function as integration and latency (Parsons et al.). Each function then serves to provide different characteristics of a healthy school (Hoy et al., 1991; Miles, 1969). The characteristics of healthy schools offered by Miles are shown in Hoy and Feldman's (1987) iteration in order to facilitate the understanding of the relationship of the frameworks to Hoy and Feldman's conceptualization of organizational health in schools. Cohesiveness was initially included by Hoy and Feldman in the pilot study, but was later dropped as a characteristic of a healthy school because it did not prove to be a valid item (Hoy et al.).

Schools have three levels of control over the seven characteristics of healthy schools finalized by Hoy and Ferguson (1985). The characteristics of healthy schools and the level of control the school has over each dimension are delineated in Table 1.
With a framework for organizational health based firmly in organizational theories of education and sociology, Hoy and Feldman (1987) developed a strong conception of what a healthy school would look like. According to those authors, in a healthy school,

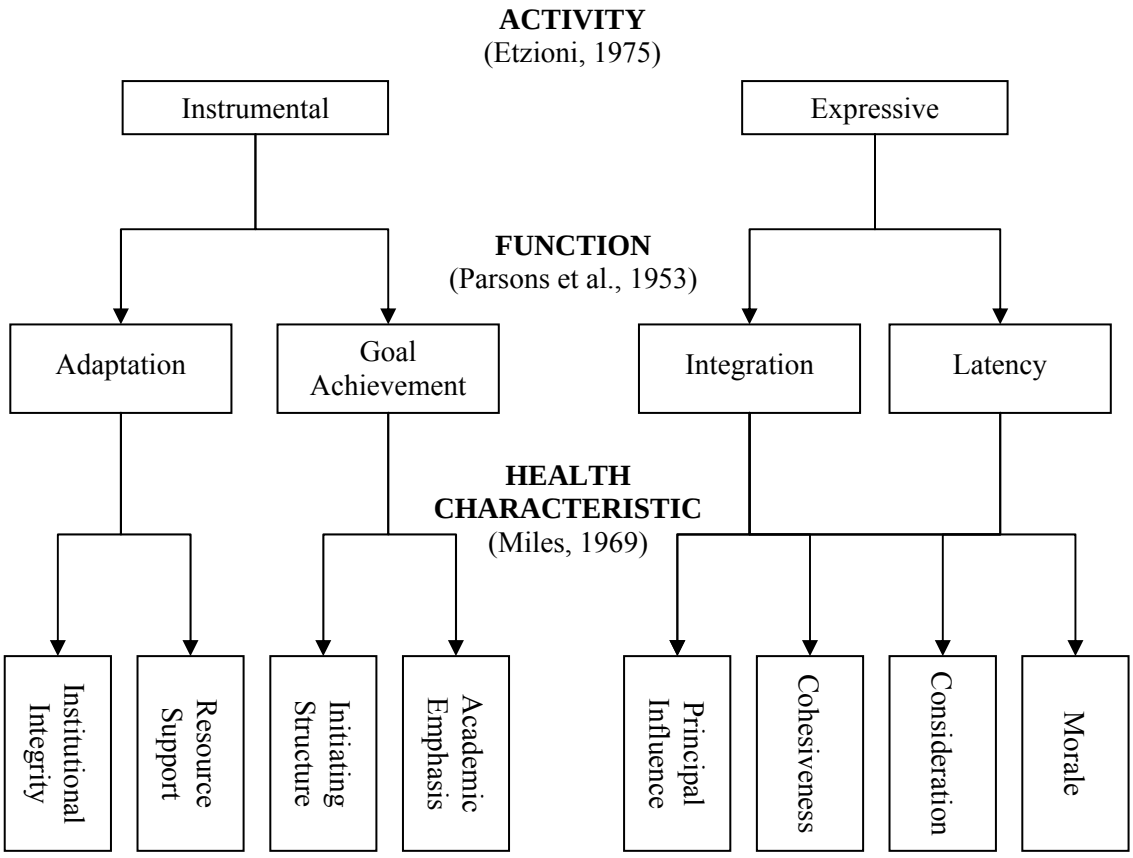


Figure 2. The relationship of the frameworks offered by Etzioni (1975), Parsons et al. (1953), and Miles (1969).

Table 1

Hierarchical Level of Control of School Health Dimensions

Level of Control	Health Dimension
Technical process: teaching and learning actors: teachers and students	• Academic Emphasis • Morale[a] • Cohesiveness[a]
Managerial process: administration of the school actors: principal(s)	• Principal Influence[b] • Principal Consideration[c] • Initiating Structure[c] • Resource Support[b]
Institutional process: connection between the school and the external environment actors: school, parents, community	• Institutional Integrity

Note. The health dimensions are labeled as they were in Hoy and Ferguson's (1985) original iteration in order to show the closest link to the framework of Miles (1969).
[a] Morale and cohesiveness were later combined to form a health dimension termed teacher affiliation (Hoy et al., 1991).
[b] Principal influence and resource support were later combined in elementary schools to form a dimension named resource influence (Hoy et al., 1991).
[c] Principal consideration and initiating structure were found to be one factor in elementary schools called collegial leadership (Hoy et al., 1991; Podgurski, 1990).

the technical, managerial, and institutional levels of control combine to create a healthy climate. Teachers and students enjoy the school and have a strong commitment to it. High but attainable goals are held for all. The principal is friendly, supportive, and resourceful, and the institution can withstand unreasonable demands placed on it from external forces. In an unhealthy school, one or more of these areas are not functioning properly. It is not as pleasant of a place to attend as a student, visit as a parent, or work in as a teacher (Hoy & Feldman, 1987, Hoy & Ferguson, 1985; Hoy & Hannum, 1997; Hoy & Tarter, 1992; Hoy & Tarter, 1997; Hoy et al., 1991). The combination of these areas leads to a healthy school. Hoy and Feldman (1987) state,

> a healthy school is one in which the technical, managerial, and institutional levels are in harmony; and the school is meeting both its instrumental and expressive needs as it successfully copes with disruptive external forces and directs its energies toward its mission. (p. 31)

Development of the Organizational Health Inventory–Elementary Version

Based on the theoretical framework of Parsons et al. (1953), Miles (1969) and Etzioni (1975), Hoy and his colleagues developed the Organizational Health Inventory (OHI) (Hoy & Feldman, 1987; Hoy & Ferguson, 1985; Hoy & Hannum; Hoy et al., 1990; Hoy et al., 1991; Hoy & Tarter, 1997; Hoy & Woolfolk, 1993; Podgurski, 1990). Initially, the OHI was used exclusively in secondary schools (OHI-S). Recently, however, Hoy and his colleagues have developed an OHI for middle schools (OHI-ML) and an OHI for elementary schools (OHI-RE) (Hoy et al., 1991; Podgurski).

The OHI-S made its debut in a pilot study by Hoy and Ferguson (1985), researchers at Rutgers University. The first version was a 95-item instrument based on the original eight dimensions of school health devised by Hoy and Ferguson: academic emphasis, morale, cohesiveness, resource support, initiating structure, principal influence, principal consideration, and institutional integrity. This instrument was given to 72 diverse secondary schools in New Jersey. Hoy and Ferguson employed three criteria in narrowing the original 95 items. First, they used only items that loaded high in one area of health and low in the others. Second, out of the high loading items, only those that clearly and closely related to the dimensions of health that they were intended to measure were kept. Finally, they measured the items by Cronbach's coefficient alpha, and only those that did not disrupt the internal validity of the subtests were retained (Hoy et al., 1991).

This filtering of the original 95 items narrowed to an instrument of 44 items that measured seven areas of organizational health. All of the areas remained the same, but cohesion was not found to have a significant impact on the instrument. The newly honed instrument was again tested in the secondary schools of New Jersey. This time 78 schools participated. Factor analysis of the revised instrument saw high reliability in all of the seven areas. Alpha coefficients were as follows: institutional integrity (.91), principal influence (.87), consideration (.90), initiating structure (.89), resource support (.95), morale (.92), and academic emphasis (.93) (Hoy et al., 1991).

In 1990, a version of the OHI was piloted for use in elementary schools. Podgurski (1990) adapted the OHI to use in his dissertation, which was directed by Hoy.

The original pilot of the OHI for elementary schools used the original seven areas of a healthy school (Podgurski). The initial study yielded some incongruence in the area of academic emphasis and had a sample of only 131 teachers. A second pilot was planned after seven new items were created to measure academic emphasis in the elementary school setting more effectively. The second pilot included a broader sample of 598 teachers from 41 elementary schools. The analysis of the data from the second pilot led to the conclusion that consideration and initiating structure loaded to one factor, which was termed collegial leadership (Hoy et al., 1991). Hoy et al. hypothesized that in elementary schools, leaders who are task-oriented and goal-directed must also be considerate and communicate well. Hoy et al. (1991) did a final test of the OHI-RE in 78 diverse elementary schools. An analysis of these data revealed that principal influence and resource support combined to form one area named resource influence. They also decided to rename morale as teacher affiliation because the items in the survey reflected strong identification with the school, other teachers, and the students (Hoy et al.).

The final five organizational health dimensions in elementary schools fall under the activities proposed by Etzioni (1975) and the levels of control and functions from the Parson et al. (1953) framework. The first dimension under the technical area of control is academic emphasis. This refers to the school's expectations of diligence and achievement from all students. The students seek and find extra help when they need it, and they hold those who do well academically in high esteem. This characteristic serves the function of goal achievement and is under the instrumental activities (Hoy et al., 1991). The second dimension under the technical area of control is teacher affiliation. The teachers are

friendly and genuinely enjoy their work. They are highly committed to the school, its teachers and students. They find ways to make accommodations when necessary, and they are enthusiastic about their jobs (Hoy et al.). Teacher affiliation serves the functions of integration and latency, and it falls under Etzioni's expressive category of activities.

The first dimension under the managerial level of control is collegial leadership. This refers to a principal who maintains high expectations for everyone, but is still friendly, supportive, and helpful. This characteristic serves the functions of goal achievement, integration, and latency. It is, therefore both an instrumental and expressive activity. The next dimension under this level of control is resource influence. This refers to the principal's ability to acquire and effectively utilize resources in the school as well as his or her ability to influence the higher-ranking members of the school system for the benefit of the school. Resource influence serves the functions of adaptation, integration, and latency. Therefore, it is also under the instrumental and expressive activities (Hoy et al., 1991).

The final level of control is institutional, and its characteristic is institutional integrity. This links the school with the outside world. Schools must withstand extraneous external pressures without harm to the internal system. This is an adaptation function and an instrumental activity (Hoy et al., 1991).

The five dimensions of health in elementary schools, along with their level of control, a brief description, the function they serve, and the activity under which they are categorized (Hoy et al., 1991) are shown in Table 2.

Table 2

Organizational Health Dimensions in Elementary Schools

Health Dimension	Function	Activity
Technical Level of Control		
Academic Emphasis • High expectations • Respect for academic success • Help available	Goal Achievement	Instrumental
Teacher Affiliation • Commitment to the school • Friendly relations	Integration Latency	Expressive
Managerial Level of Control		
Collegial Leadership • Principal is friendly, supportive, and helpful • Principal sets high standards	Goal Achievement Integration Latency	Instrumental Expressive
Resource Influence • Principal acquires and utilizes resources effectively • Principal can influence superiors	Adaptation Integration Latency	Instrumental Expressive
Institutional Level of Control		
Institutional Integrity • School can withstand unreasonable external demands without harm to the internal system	Adaptation	Instrumental

The final version of the OHI-RE is a 37-item, four-point Likert survey (See Appendix A). The areas of organizational health in elementary schools and their reliability coefficients are as follows: institutional integrity (.90), teacher affiliation (.94), collegial leadership (.95), resource influence (.89), and academic emphasis (.87). A second order factor analysis was also performed on the data from the final study. The correlations among the subtest of the OHI-RE are shown in Table 3.

The OHI-RE yields scale scores (μ= 500, SD = 100) for each area of organizational health as well as a total health score for the school. A very high score in any area is above 600. Any score below 400 is considered very low (Hoy & Tarter, 1997). A typical healthy school has a score of 583 for institutional integrity, 617 for collegial leadership, 595 for resource influence, 609 in teacher affiliation, 578 in academic emphasis, and an overall health score of 596. In contrast, a typical unhealthy school has an institutional integrity score of 483, 363 in collegial leadership, 389 for resource influence, 342 in teacher affiliation, 359 for academic emphasis, and an overall health score of 378.

Many studies have employed the OHI in its various versions. For example, Brown, Roney, and Anfara (2003) used the OHI-Middle Level in a study of high and low performing middle schools. Hoy and Woolfolk (1993) used the OHI-RE to see if teacher efficacy was influenced by organizational health. Licta and Harper (1999) used the OHI in an attempt to correlate school robustness and organizational health. Sweetland and Hoy (2000) used a revised version of the OHI in conjunction with a revised version of the OCDQ to study teacher empowerment and organizational health. Polanski and Jones

Table 3

Correlations among OHI-RE Subtests

Subtest	Institutional Integrity	Teacher Affiliation	Collegial Leadership	Resource Influence	Academic Emphasis
Institutional Integrity	(.90)				
Teacher Affiliation	.15	(.94)			
Collegial Leadership	.17	.64	(.95)		
Resource Influence	.17	.48	.50	(.89)	
Academic Emphasis	.17	.67	.45	.40	(.87)

Note. From *Open schools/healthy schools: Measuring organizational climate.* W. K. Hoy, C. J. Tarter, R. B. Kottkamp, 1991, Beverly Hills: Sage. Copyright 1991 by Sage.

(1998) studied the impact of school funding on organizational health. Tsui and Cheng (1999) found relationships among organizational health factors and teacher commitment.

Organizational Health and Student Achievement

The following section begins with an overview of studies that have examined the relationship between the organizational health of schools and student achievement as measured by standardized test scores. After this review, studies that have linked individual aspects of organizational health (academic emphasis, teacher affiliation, resource influence, collegial leadership, or institutional integrity) with student achievement are examined. While effective schools are characterized by much more than standardized test scores (Bossert, 1988; Freiberg, 1993; Green, 2000; Reynolds, Teddlie, Creemers, Scheerens, & Townsend, 2000; Scheurich, 1998; Sells & Shepard, 1998; Uline et al., 1998), this study focused on student achievement scores, specifically value-added achievement gain scores.

Overall School Health and Student Achievement

Many researchers have used the OHI to examine relationships between student achievement, as measured by standardized tests, and the health of a school (Brown et al., 2003; Browne, 2002; Goddard et al., 2000; Hoy & Hannum, 1997; Hoy, Hannum, & Tschannen-Moran, 1998; Hoy et al., 1990; Podgurski, 1990; Smith, 2002; Sweetland & Hoy, 2000; Valente, 1999). Each study, with the exception of Goddard et al. and Podgurski found strong correlations among student achievement and aspects of organizational health. Goddard only focused on the academic emphasis aspect of organizational health, and the Podgurski dissertation was flawed in its design according

to Hoy and Hannum. However, the other studies discovered some results that have remained consistent in a variety of settings. Browne, Hoy and Hannum, Hoy et al. (1990), Hoy et al. (1998), Smith, Sweetland and Hoy, Uline et al. (1998), and Valente found strong positive relationships between at least some of four aspects of organizational health and student achievement. The studies are discussed according to their methods, upon which school level they were performed, and their general findings.

Secondary level studies. Uline et al. (1998) used a quantitative study to investigate the impact of school health on math, reading, and writing achievement in high schools. They found a significant correlation between an overall organizational health score and math achievement ($r = .606$, $p < .01$), reading achievement ($r = .584$, $p < .01$), and writing achievement ($r = .551$, $p < .01$). The authors, however, did not run a multiple regression analysis on the data; therefore, what impact organizational health may have had independent of influential factors such as socioeconomic status is indeterminable.

In another quantitative study, Smith (2002) looked for correlations among health factors and student achievement in high schools. Using a combination of health and openness frameworks to describe climate, Smith cited four areas of positive school climate that are derived from and similar to organizational health factors but not identical to them. They are consideration, resource support, initiating structure, and academic emphasis. Her zero order correlations show significant correlations in the areas of consideration ($r = .24$, $p < .05$), resource support ($r = .29$, $p < .01$), initiating structure ($r = .24$, $p < .05$), and academic emphasis ($r = .54$, $p < .01$). In the subsequent regression

analysis, only academic emphasis was found to make a significant independent contribution to the student achievement scores ($\beta = .43$, $p < .01$).

Middle level studies. In a quantitative study of organizational health and student achievement in math, reading, and writing in middle schools, Hoy and Hannum (1997) found significant correlations among health dimensions and standardized scores on achievement tests. They began by running zero order correlations on all of the data. In this first run, Hoy and Hannum found that academic emphasis was the only health dimension that was strongly correlated to math ($r = .73$, $p < .01$), reading ($r = .70$, $p < .01$), and writing ($r = .64$, $p < .01$) achievement. Next, through a multiple regression analysis, they discovered significant and unique effects that the academic emphasis (math $\beta = .28$, $p < .01$; reading $\beta = .22$, $p < .01$), teacher affiliation (math $\beta = .20$, $p < .01$; reading $\beta = .17$, $p < .05$; writing $\beta = .23$, $p < .05$), resource support (reading $\beta = .19$, $p < .05$), and institutional integrity (math $\beta = -.28$, $p < .01$; reading $\beta = -.29$, $p < .01$; writing $\beta = -.29$, $p < .01$) dimensions of organizational health had on student achievement independent of the effects of socioeconomic status. They noted that the strongest association found in the regression was academic emphasis. Institutional integrity showed a negative impact on student achievement. Furthermore, resource support and principal influence did not have a significant relationship to student achievement in these subject areas.

In another quantitative study at the middle school level, Hoy et al. (1998) looked for correlations among the climate dimensions of environmental press, collegial leadership, teacher professionalism, and academic press. These dimensions were

correlated with student achievement scores in math, reading, and writing. Zero order correlations for all areas of health were found to be significantly correlated to student achievement in reading, math, and writing at the $p < .01$ level. Environmental press (math $\beta = .33$, $p < .01$; reading $\beta = .35$, $p < .01$; writing $\beta = .26$, $p < .01$), collegial leadership (math $\beta = .17$, $p < .05$; reading $\beta = .21$, $p < .05$; writing $\beta = .17$, $p < .06$), and academic press (math $\beta = .28$, $p < .01$; reading $\beta = .26$, $p < .01$; writing $\beta = .31$, $p < .01$) made a significant contribution to the achievement scores of the students independent of any other effects, such as socioeconomic status.

In a subsequent quantitative middle school study, Sweetland and Hoy (2000) made an indirect link between organizational health and student achievement. They found that organizational health has a positive impact on teacher empowerment. Sweetland and Hoy went on to find a correlation between teacher empowerment and student achievement in reading and math.

Henderson et al. (2005) performed a mixed method study that sought the relationships between organizational health and student achievement, as measured through median national percentile scores and value-added grades based on the students' academic gains. They found no significant relationships between organizational health and student achievement but did see some relationships between organizational health and value-added gains. The generalizability of this study, however, is extremely limited due to the small sample size obtained for the research.

In the lone qualitative work on organizational health in the middle school level, Brown et al. (2003) provided a more detailed investigation of some of the findings from

the previous studies on organizational health and student achievement. They interviewed teachers at high and low performing middle school that were implementing the *Turning Points* reform. They found evidence of significant differences between the high and low performing schools in five areas of organizational health. In the area of academic emphasis, high performing schools held high expectations, encouraged active involvement, and were confident in their students' abilities. The low performing schools, on the other hand, had lowered expectations in an attempt to give students a taste of success. They taught from a stagnant curriculum and lacked overall confidence in the abilities of their students. In the area of teacher affiliation, teachers from both sets of schools were found to be committed to their students. However, teachers in the high performing schools were more satisfied with their jobs and spoke of a strong sense of collegiality whereas the teachers in the low performing schools did not. In the area of collegial leadership, the teachers in the high performing schools reported that their principals were instructional leaders who fostered a shared vision, growth, and development for the school. The principals of the low performing schools were ironically reported to be focused mainly on test scores. In the area of resource support, teachers in the high performing schools reported an abundance of resources while the teachers from low performing schools said that they had adequate to low levels of resources. Teachers from both sets of schools reported a lack of time. Finally, in the area of institutional integrity, the teachers from the high performing schools reported high levels of parental involvement, a focus on what the schools can do for the community, and high levels of resistance to external pressures. Teachers from the low performing schools asked what

the community could do for their school. They reported low levels of parental involvement and resistance to outside pressures (Brown et al.).

Elementary level studies. Two studies concerning overall organizational health and student achievement were completed in the elementary school setting. Both of these studies are dissertations. Browne (2002) found through a quantitative study of nine elementary schools that high performing schools generally have healthier climates than low performing schools. She also found significant, positive associations between school performance and the organizational health factors institutional integrity and academic emphasis. While the positive association of academic emphasis reaffirms the findings of the other studies, the positive correlation with institutional integrity is anomalous to the other studies. Podgurski (1990) did not find correlations among organizational health factors and school effectiveness indicators. However, as previously mentioned Hoy and Hannum (1997) cite some possible flaws in this study.

General findings from the overall health studies. The research that focuses on finding the overall health of a school and looking for relationships between it and student achievement found that teacher affiliation, resource support, and academic emphasis positively correlate to student achievement, whereas institutional integrity correlates negatively to student achievement in almost all of the studies. Academic emphasis was consistently among the most influential factors affecting student achievement. These findings remain consistent even when the researchers control for socioeconomic status. The negative correlation between institutional integrity was troubling to Hoy and his colleagues initially. However, Hoy and his co-authors theorized that schools with higher

achievement levels often have more involvement from the community. Schools with higher socioeconomic status often find more parental intrusion as well. Hoy and Hannum (1997) point out that although teachers often wish to be shielded from the interference of parents in their classrooms, such interference often is associated with positive outcomes for the students. Hoy and Hannum suggest that teachers recognize the potential that parental involvement holds for the benefit of the students. Even though such involvement threatens the institutional integrity of the school, it should be welcomed and cultivated for the best possible results (Hoy & Hannum). Hoy, Tarter, and Hoy (2006) have gone on to develop the idea of faculty trust, which refers to the teachers' perception that students and parents will act in good faith.

Another consistent finding concerned that of the impact of the principal on student achievement. The principal bears most of the responsibility for the managerial area of Hoy and Feldman's (1987) organizational health framework. They found that the influence of the principal on the achievement of the students was indirect at best (Browne, 2002; Goddard et al. 2000; Hoy & Hannum, 1997; Hoy et al., 1990; Smith, 2002; Sweetland & Hoy, 2000; Valente, 1999). One researcher proposed that principals support the teachers by staving off unreasonable external demands and using influence on superiors in order to fulfill the needs of the schools (Smith).

Most of these studies have been conducted at either middle (Brown et al., 2003; Hoy & Hannum, 1997; Hoy et al., 1990; Hoy et al., 1998; Sweetland & Hoy, 2000) or high schools (Smith, 2002; Uline et al., 1998). Only the works of Browne (2002) and Podgurski (1990) have specifically focused on the correlation between organizational

health factors and school effectiveness in elementary schools, and both of these are unpublished dissertations. Browne found a correlation among school effectiveness and institutional integrity, teacher affiliation, academic emphasis, and overall health of the organization. Podgurski's findings were not conclusive, possibly due to some problems in the design of the research (Hoy & Hannum).

Furthermore, almost all of these studies are quantitative in nature, relying on zero order correlations and multiple regression analyses of the data (Hoy & Hannum, 1997; Hoy et al., 1990; Hoy et al, 1998; Smith, 2002; Sweetland & Hoy, 2000). Only Brown et al. (2003) have examined organizational health and student achievement through a qualitative paradigm. One study has taken a mixed-method approach to examining organizational health at the middle level (Henderson et al., 2005). Since this study uses a mixed method approach to examining organizational health and student achievement, and it is performed at the elementary school level, it will fill a current gap in the literature on organizational health and student achievement. Further adding to the significance of this study, is the focus on the relationship of organizational health and student achievement gains at the elementary level.

Relationship among Individual Dimensions of Organizational Health and Student Achievement

The following section outlines some studies that have examined individual aspects of organizational health (academic emphasis, teacher affiliation, collegial leadership, principal influence, and institutional integrity) and their relationship to student achievement.

Academic emphasis. Across many of the studies, the strongest correlation with achievement exists in the academic emphasis in the schools (Brown et al., 2003; Browne, 2002; Hoy et al., 1990; Hoy et al., 1998; Hoy, Tarter, & Hoy, 2006; Hoy & Hannum, 1997). In other words, it appears that schools that hold high expectations for their students and maintain an orderly environment see higher student achievement scores on standardized tests (Goddard et al., 2000). In fact, this finding was so consistent that Goddard et al. focused one study on that result and found strong positive correlations between academic emphasis in a school and the math achievement of its students in a quantitative correlation study. Brookover et al. (1978), Cawelti (1999), Glidden (1999), and Licta and Harper (1999) have all found strong positive associations between academic emphasis and student achievement. These studies take a mixture of both qualitative and quantitative approaches.

Teacher affiliation. Research on the impact of teacher affiliation on student achievement is not as consistent as the research concerning academic emphasis. Most studies cite teacher affiliation as a factor that positively influences student achievement (Brookover et al., 1978; Glidden, 1999; Nir, 2002: Strahan, Carlone, Horn, Dallas, & Ware, 2003; Valente, 1999). However, most of these studies directly state that the impact from teacher affiliation on student achievement is at best indirect (Brookover et al., 1978; Nir, 2002; Strahan et al., 2003). One study (Driessen & Sleegers, 2000) states that teacher affiliation has no visible impact on student achievement.

Collegial leadership. In a situation similar to that of teacher affiliation, there is some contention as to the directness or existence of the impact of collegial leadership on

student achievement. Heck, Larsen, and Marcoulides (1990) state that the principal can have a direct positive impact on the student's learning. Andrews, Basom, and Basom (1991), Cohen (1987), Glidden (1999), and Valente (1999) acknowledge the potential impact of the collegial leader, but state that the influence he or she can have on student achievement is indirect. In their review of literature on the principal's role, Hallinger and Heck (1996) found mixed results from studies of the principal's impact. However, they concluded that the stronger the methods of the research, the more likely the principal was seen to have influence on student achievement outcomes.

Resource influence. The landmark input/output studies of Coleman et al. (1966) and Jencks et al. (1972) found no effects of increased resources in schools on student achievement. Brookover et al. (1978) countered by stating that not only do the amount of resources matter to student achievement, but also their effective and efficient use. Ensuring such use is the role of the principal. Sutton and Soderstrom (1999) reaffirmed some of the Coleman et al. and Jencks et al. findings by stating that "cannot control" factors such as race, socioeconomic status, drop out rates, and attendance (by their definition) account for much more variance in student achievement from school to school than do the "can control" factors of class size, per pupil expenditure, and student/teacher ratio. Figlio (1999), though, found that some variables under the resourceful principal's purview could affect student achievement. Lower class size, for example, can positively influence student achievement scores.

Institutional integrity. There is a general agreement in the literature that the more parents are involved in the schooling process, the better a student will perform (Mau,

1997; Wang & Wildman, 1996). While schools strive to involve parents and the community in their endeavors, they must shield themselves from unreasonable pressures and demands made by actors outside of the institution (Hoy & Ferguson, 1985). Hoy and his colleagues later found stronger positive correlations between a factor that they termed faculty trust, faith of the teachers that the parents and students will act honestly and openly, and student achievement (Hoy et al., 2006).

Tennessee Value-Added Assessment System

Background of TVAAS

Sanders, at the time a statistician with the College of Agriculture at The University of Tennessee, read a 1982 newspaper article outlining arguments relating to teacher effectiveness. The article stated that standardized testing could never produce a fair means for judging teachers and schools because of the mitigating factors external to the school's control that affected the students' achievement level. The article contained explanations of three statistical reasons for this impossibility. While Sanders did not rule out the possibility that achievement test scores could not be used to assess the success of a school, he disagreed with the reasons presented in the article. With his strong background in statistics, he decided to examine the issue further (Hill, 2000).

Following his curiosity, Sanders was able to develop a system that would allow schools to see the gains that their students made from year to year on annual achievement tests. He employed a mixed-model statistical method developed by Henderson, an animal breeding expert at Cornell University. The mixed-model statistical method "enables a repeated-measures, multivariate response analysis allowing the inclusion of all of the

information available for each student regardless of the degree of missing information" (Sanders, Saxton, & Horn, 1997, p. 137). It can use any highly correlated linear variables to obtain the best linear unbiased predictor (BLUP). The advantage of the mixed-model statistics that Sanders applies is that it makes provisions for missing or fragmented records (Sanders & Horn, 1998). Schools that wish to obtain longitudinal information on their students face the reality of students who move in and out of the state, change their names, and miss segments of the tests. The mixed-model approach has the unique ability to calculate the student gains with whatever information is available (Sanders et al., 1997).

The TVAAS

The foundation of the Tennessee Value-Added Assessment System (TVAAS) includes assumptions about time and elements. The belief that a person's learning can best be assessed from one occasion to another is a critical component. Another assumption is that factors other than school impact students so those elements need to be separated in order to perform an evaluation. Finally TVAAS is based on the assumption that the teacher is the single most influential variable on the student's learning (Archer, 1999). Thus the system mirrored Sanders belief that by looking at student data over a long period of time and eliminating potentially biasing factors such as socioeconomic status and intelligence level, one can obtain a fair and unbiased analysis of the effect that a teacher has had on a student, or the value that the teacher has added to the learner (Sanders & Horn, 1998). TVAAS at its heart assesses the effects that teachers, schools, and systems have on students (Sanders et al., 1997). The primary author of the system,

Sanders, claims to be able to factor out the external factors, such as socioeconomic status, educational level of parents, and previous achievement from the test scores. This, in Sanders' opinion leads to a fair assessment of the impact that teachers, schools, and systems are having on the students (Sanders & Horn).

TVAAS utilizes a mixed model statistical design to obtain a "multivariate, longitudinal analysis of student achievement data" (Sanders & Horn, 1998, p. 249). The data on student achievement come from the Tennessee Comprehensive Assessment Program (TCAP), which consists of four groups of tests in the areas of math, reading/language, science, and social studies. TCAP is a criterion-referenced test that corresponds to the Tennessee State Curriculum Guidelines. The TCAP is given to all students in Tennessee schools grades three through eight each year. Data are also obtained from end of course gateway exams given in grades ten and twelve (Sanders & Horn). Results from these tests are collected in a large database maintained by the value-added component of SAS, located in Raleigh, NC (Hill, 2000). The longitudinally merged database stores student scores for at least five years. The scores can be compared to obtain teacher, school, and district effects on student achievement (Bratton, Horn, & Wright, 1996).

The TVAAS system compares each student's score to his or her previous year's score to obtain a gain score. To do this, the TVAAS uses raw scores from the test and changes them to normal curve equivalent (NCE) scores. This permits comparison among the scores.

Each gain score is compared to an expected gain for the grade level of the student across the state. This expected gain is calculated from the gain of students made on the 1998 TCAP (TVAAS, 2006). The student's gain can then be expressed as a ratio of that average gain. For example, suppose a student scored in the 60th percentile NCE on the fourth grade test in 2004 then again in the 60th percentile on the fifth grade test in 2005. This student has progressed at a rate equal to that of other students, and therefore made what is considered one year's growth. The corresponding gain score for that student would be 0.0. A negative gain score would indicate a student with less than one year's growth, and a positive gain score would indicate more than one year's growth (TVAAS).

These scores are stored in a longitudinally merged database so that several years' worth of scores can be accumulated. The use of a longitudinally merged database allows for the comparison of not only individual student gains, but also gains imparted by teachers, schools, and districts. The formula for these calculations gets somewhat more complex. This intricacy stems from Sanders' attempt to solve two common, but difficult problems facing educational testing.

Many assessment systems have run into two common problems when attempting to assess the impact of schools on their students. First, as discussed earlier, several factors outside of the school's control influence student achievement. The income level of the student's family, the educational level of the student's parents, the IQ of the student, and the previous achievement of that student all have been identified as impacting the performance of a pupil on a standardized test (Jantz, 1974; Willie, 2001). If data from standardized tests are to be used for holding teachers and schools accountable, people

will not be using fair and equitable means if those factors are ignored. It would not be just to gauge the performance of a school serving the many needs of low-income, inner-city children on the same criteria as schools with affluent students and parents with high educational attainment without taking into account these mitigating factors.

Another major malady facing the educational assessment movement stems from the desire to compare student records over a long period. Longitudinal data are desirable in an attempt to gauge the success of schools, districts, and teachers. This desire, however, translates into a major difficulty when attempting to implement it. Many records that hold the data on students are incomplete. Students move out of public schools and into private ones. Students are also home schooled. These and other things happen to fragment the records of students, the records usually become unusable for most purposes of longitudinal studies.

The TVAAS was developed by Sanders to remedy these common difficulties encountered when dealing with standardized testing of a large number of students. TVAAS has some characteristics that make it unique to most accountability systems and which help solve these common problems. First, the longitudinally merged database enables TVAAS to use each child as his or her own control. This aspect of the system, Sanders claims, alleviates the first problem discussed. Sanders states the use of each child as his or her own control "blocks" exogenous factors that influence test results, such as race, socioeconomic status, and educational attainment of the parents (Sanders et al., 1997, p. 142). He states that these potentially confounding variables can be partitioned through this blocking process without having direct measures of the factors (Sanders et

al.). Using the best linear unbiased predictor (BLUP), TVAAS can show supposedly unbiased teacher effects. Therefore, the use of a longitudinally merged database allows TVAAS to control for exogenous factors that could influence students' test scores.

However, there is still the problem of fragmented records mentioned above. Sanders claims to have solved this problem with the use of mixed method statistics. Unlike multiple regression analysis, the most common method for factoring out extraneous variables, mixed model methods allows researchers to make use of data sets even if they are fragmented. This means that a student's data need not be discarded if he or she moves in and out of state, has an error in data processing, or misses some of the tests. The mixed model method just makes use of the data available to it and by using BLUP, claims to be able predict without the missing data. The use of mixed model statistics enables TVAAS to compare large amounts of records over long periods of time (Sanders et al., 1997). Unfortunately, this method is not easily comprehended because it is an advanced statistical procedure, which is difficult to explain. This has led most of the literature on TVAAS to state one will "have to go on faith" (Bratton et al., 1996, p. 31) to trust its validity. Skeptics consider this an unacceptable response. Sanders adamantly claims that mixed model statistics "furnish unbiased estimates of the influences of districts, schools, and teachers on the rate of academic progress of populations of students without imputation for missing data or elimination of fractured records" (Sanders et al., p. 143).

Since the TVAAS data are used to classify the performance of districts, schools, and teachers, it has some built-in safeguards against improper misclassification of one of

these as either extremely high or extremely low performing. The first of these safeguards is the use of a shrinkage effect. This means that teachers are assumed to be performing at the system average until the weight of their data pulls them toward a high or low end. This keeps teachers with small amounts of data from being misclassified (Sanders et al., 1997). Another safeguard is the use of three-year averages to calculate the gains of teachers, schools, and systems. This helps mediate the effects of severe drops or increases in assessment scores over the course of one year (Archer, 1999). A final safeguard is the use of a layered effect for teacher scores. Teacher effects are spread over the course of three years so that the teacher's impact can be seen into the future, not for just one year. In reality, the knowledge imparted to a student from a teacher can show up years after the test is given. The layering of teacher effects helps give the teachers credit for the foundation that they set for future learning (Stone, 1999).

The data resulting from TVAAS provide very detailed summative feedback. Districts, schools, and individual teachers receive reports outlining the performance of their students. The gains of the students in a teacher's class are averaged, and this average indicates the effect that the teacher had on the learning of the group of students, or the value added by the teacher. Gains for the grade level and school are also calculated to obtain a value-added score. Gains are also obtained for entire districts. Results for the district, school, and grade level are published in newspapers and on the state website for public review. Grades are also assigned to schools and districts based on the ratio of the state gain that they acquired within that year.

Perhaps one of the most overlooked benefits of TVAAS is its enormous potential as a source for data for educational research. While providing an extensive source of information for research is not the primary objective of TVAAS, it certainly constitutes a valuable unintended consequence. Sanders has openly called for researchers to make use of the enormous longitudinal database that TVAAS uses to track student gains (Hill, 2000; Sanders & Horn, 1998; Stone, 1999). Many discoveries have already stemmed from the TVAAS database. For example, the building level effect was detected. This effect speaks to the drastic drops in student gains when they move from one building level to another, for example, moving from a primary (K-2) school to an intermediate (3-5) school or from an elementary school to a middle school (Sanders et al., 1997). Another finding is that student gains are statistically unrelated to the socioeconomic status of students, the racial composition of the school, or the average achievement level of the school (Sanders & Horn, 1998). Another finding from research about TVAAS found the aforementioned shed patterns. This study found that teachers typically see the most gains with their low-achieving students, while the top performers' gains tend to lag behind. Wright (as cited in Sanders & Horn, 1998) found that the schools seeing the most gains produced a flat pattern of gains, with teacher effectiveness being the most important predictor of student achievement gains. Still another finding from TVAAS studies concerns the residual effects of teachers. This research found that students assigned to ineffective teachers continue to show negative effects in ensuing years. The same study found that students assigned to ineffective teachers two years in a row never recover from the ill effects. This study, performed by Sanders and Rivers (as cited in Sanders & Horn)

also found that teacher effects on students of various achievement levels vary according to their effectiveness. The benefits of teacher effectiveness show up first in low-achieving student gains. As teachers become more effective, the benefits work their way to average students, and finally to high-achieving students. Only the top 20% of teachers provided for adequate gains among the top-achieving students.

Criticisms of TVAAS

Even as TVAAS provides much information to schools, the process has had many critics. Large portions of these criticisms were contained in a report issued through the State of Tennessee Comptroller's Office. This report, written in 1995 and 1996 outlined several shortcomings of the system, and even went so far as to recommend that it be profoundly re-worked in order to justify its further existence (Bock, Wolfe, & Fisher, 1996). Others, who the TVAAS policy was intended to serve, have also spoken in disapproval.

The most frequent and potent of these criticisms is the density and opaqueness of the statistical methodology employed to arrive at the value-added scores. Sanders et al. (1997) outline the mixed-method statistics in detail. That method challenges anyone who does not have a strong background in statistical analysis. Often, Sanders answers questions about his statistical methods with a simplistic response stating that the methods are too complicated to understand, and must be taken on faith. These statements do little to alleviate the concerns of teachers and other interested parties (Baker & Denke, 1995).

The State Comptroller's report questions the large, inexplicable swings in gain scores of schools from year to year (Bock et al., 1996). Some schools have seen their

TVAAS scores drop drastically over one year, and with no apparent reason rise again to their previous level. These occurrences raise concerns about the accuracy of the data and the reliability of the system.

Another criticism levied by the Comptroller's report concerned the assumption that all learning takes place in the classroom, and is therefore teacher related. The report calls into question the foundation that TVAAS is built around, that the teacher is the single most influential factor in the learning of the student. Sanders claims that the use of individual students as their own control serves to block other exogenous factors that may influence the learning of the student. The validity of this assumption has been questioned by several critics (Bock et al., 1996; Kupermintz, Shepard, & Linn, 2001). Furthermore, while Sanders and Horn (1998) claim that factors such as socioeconomic status and per-pupil expenditure are not correlated with student gains in achievement, Hu (as cited in Kupermintz et al.) found otherwise.

Still another criticism addresses one of the built in "safety features" of TVAAS. Part of Sanders' attempt to avoid unfairly labeling teachers as ineffective is the use of "shrunken estimates," which ensure that only teachers with a substantial amount of data will be pulled from the mean of the system. The use of these shrunken estimates also means that teachers who perform substantially well must do so for many years in order to be labeled outstanding. Kupermintz et al. (2001) stated this analysis is unfair to exceptional teachers who have little data. Bock et al. (1996) are also suspect of the layering effect that TVAAS utilizes to gauge a teacher's performance. The layering effect spreads the teacher effects across three years of the student's gain scores. This means that

a student's gains in fifth grade can affect the student's third grade teacher's value-added scores. Therefore, even some of the safeguards of this system have been discussed as negative aspects.

Kupermintz et al. (2001) also point out the circular logic of some of Sanders's and Rivers's research findings. Sanders and Rivers state that students who are placed for two years in a row in the classrooms of ineffective teachers will never recover. Kupermintz et al. counter that statement by arguing that this may be true, but only if teacher effectiveness is defined in terms of student gains.

Another criticism has to do with the wisdom of using standardized tests to evaluate teachers. Even if TVAAS does adequately control exogenous influences on student achievement gains, the system still uses tests given only once a year to determine the effectiveness of a teacher. As pointed out earlier, a test score is at best a limited sample of a student's knowledge, a snapshot. Questions abound as to the wisdom of placing so much emphasis on such a relatively small amount of information (Vaughan, 2002).

Disputes about the validity of the statistical methods used by Sanders in the TVAAS system have arisen. Bock et al. (1996) cited many concerns over the use of mixed model statistics in the manner in which they are employed by TVAAS. Mostly, they question how TVAAS can claim to factor out potentially confounding variables such as socioeconomic status, prior learning, and race without having any direct measure of those elements.

The strength of these criticisms is reflected in the refusal of the United States Department of Education to accept TVAAS as Tennessee's accountability measure under No Child Left Behind (NCLB). The main complaint about the TVAAS method is that theoretically, students who start their academic careers at a low level could go on making adequate gains while never reaching grade level. Systems and schools could also get credit for moving these children along without ever getting them where they need to be. This Department of Education decision that adequate yearly progress was not assessed in this system left TVAAS impotent, a policy with no real teeth of enforcement. These disapprovals, however, have not kept the State of Tennessee from using the TVAAS model as its key assessment tool. Despite these major criticisms, the TVAAS model is still in use. In fact, SAS, a software company based in Raleigh, NC, is currently developing computer programs that can perform value-added assessment strategies for schools outside of Tennessee based on this model.

Conclusion

The literature provides a solid base for both the conceptual framework and instrument used in this study. Hoy and his colleagues have developed the ideas of Parsons et al. (1953) and Miles (1969) into a solid theory of organizational health that has been applied in many ways to school settings. Previous studies have found significant correlations between aspects of organizational health and student achievement. The organizational health of a school appears to be a factor that can affect students in positive or negative ways. It can also provide insights for leaders into aspects of their schools that could have gone unnoticed. Finally, organizational health can be used as a gauge for

reform in schools (Hoy & Hannum, 1997). Several studies have investigated the relationship between organizational health and student achievement. This study will make a significant contribution to that literature. First, most of the studies in the area come from a quantitative paradigm, and only one study is qualitative in nature. This study will approach the problem from a mixed method paradigm, gaining informative quantitative data in the form of TVAAS scores and OHI-RE scores and rich qualitative data in the form of interviews and observations. This mixed-method approach will have the insight of the quantitative paradigm coupled with the depth of understanding acquired through the qualitative paradigm. Secondly, this study will be performed at the elementary level, where there is a lack of published quality prior research. Third, this study will look for a relationship between organizational health and value-added student achievement data. The value-added data utilize hierarchical linear modeling and students' previous test data to factor out the potentially confounding effects of socioeconomic status, race, and prior achievement. No other studies in organizational health and student achievement have used value-added scores as the measure of student achievement at the elementary level. They have relied on multiple regression analyses to factor out socioeconomic status and race, but they cannot factor out prior achievement. This study focus on the gains that schools make with students, and examine student achievement data to relate the study to previous research.

CHAPTER III

METHODS

Introduction

This study explored the relationship among the aspects of organizational health and student achievement gains in a metropolitan school district of a southeastern state. In this exploration, I employed a mixed-methods design. This chapter will explain the rationale for using a mixed-methods design, design of the study, role of the researcher, data collection site, quantitative and qualitative data collection procedures, analysis procedures for the quantitative and qualitative data, and methods of verification.

Conceptual Framework

The conceptual framework that guided this study was that of Hoy and Tarter's (1997) work in organizational health in elementary schools. This framework guided the development of the interview protocols and observation framework. Data gathered in the qualitative portion of the study were also analyzed through the lens of Hoy's work on organizational health.

The organizational health of a school has been suggested as an idea that encompasses components that support strong schools. This concept can be considered a metaphor for the climate of the school, a simple framework for improving school organizations (Hoy & Hannum, 1997). Studies have found a positive correlation between organizational health factors and student achievement (Brown et al., 2003; Browne, 2002; Goddard et al., 2000; Green, 2000; Hill, 2003; Hoy & Hannum, 1997; Hoy et al., 1990; Smith, 2002; Valente, 1999). Even when strongly influential factors such as

socioeconomic status were controlled, organizational health was shown to correlate with the achievement of students. That positive association of organizational health and student achievement provides a direction for improving the practices of schools.

Hoy and Feldman (1987) operationalized the work of Miles (1969), Parsons et al. (1953), and Etzioni (1975) by combining the characteristics of healthy organizations offered by Miles, the problems that all organizations must solve presented by Etzioni, and the methods of control the organization has over them reported by Parsons et al. In their amalgamation, Hoy and Feldman made these ideas applicable to schools. Through their research, Hoy and his colleagues (Goddard et al., 2000; Hoy & Feldman, 1987; Hoy & Hannum, 1997; Hoy et al., 1990; Sweetland & Hoy, 2000) have found five components of organizational health in elementary schools, which fit into three methods of control. The first method of control is technical. This area deals with the processes of teaching and learning. The first organizational health characteristic that falls under this area is academic emphasis (AE), which refers to the school's expectations of high academic standards for students of all abilities, extra help for students, and respect for academic success. The second characteristic under the technical area of control is teacher affiliation (TA). This area refers to a sense of connection to the institution. Optimally, teachers would relate in a friendly, enthusiastic atmosphere. The second area of organizational control is managerial. This deals with the function of the principal. The first characteristic in elementary schools under this area is resource influence (RI). This is the principal's ability to influence his or her superiors in order to benefit the teachers and to ensure teachers have materials necessary for their tasks. The next area is collegial leadership

(CL). Collegial leaders are friendly, open, approachable, and fair while setting high standards for performance. The final area of control is institutional. The characteristic of organizational health under this area is institutional integrity (II). This is the school's ability to withstand unreasonable external demands, for example, those placed by teachers, parents, or community organizations. Chapter II holds a more detailed description of the concept of organizational health.

Assumptions and Rationale for a Mixed-Methods Study

For many years, researchers debated the superiority of quantitative or qualitative methods. These two forms of research came from different paradigms. The underlying beliefs of each seemed so dissimilar that they were beyond reconciliation. These two paradigms, however, cannot be viewed as a dichotomy (Greene & Caracelli, 2003). They are simply different ways of learning about phenomena. Greene and Caracelli state, "social reality is *both* causal and contextual, and social knowledge is *both* propositional and constructed [italics original]" (p. 99). In other words, social reality cannot fit neatly into a single paradigm. They go on to extol the potential illumination that can come from a thoughtful mix of quantitative and qualitative methods. However, this mixture of methods should not occur haphazardly. The researcher must give careful thought to the underlying assumptions from which each paradigm has developed. The method of inquiry must be based on the needs of the study (Greene & Caracelli).

The data collection and analysis phase of this research had ontological, epistemological, axiological, rhetorical, and methodological beliefs rooted in both the quantitative and qualitative paradigms. The following section illuminates the

philosophical underpinnings of the decision to use a mixed methods approach for this study.

In line with the recommendations of Greene and Caracelli (2003), I analyzed the paradigmatic assumptions of the current research. Ontologically, this study was performed under the assumption that multiple realities exist, and that value exists in gaining understanding of the individual realities of the participants. Epistemologically, I made the assumption that I must interact with the subjects of the study. This interaction was not avoided, but welcomed with appropriate measures to ensure impartiality and reliability. Axiologically, I admitted the inherent presence of values and beliefs in the study, both on the part of the participants and myself. Rhetorically, this study took a largely qualitative tone. Most of the language used was taken from that paradigm. This was not intended to show bias toward that paradigm, but rather to increase consistency and avoid confusion. While ontologically, epistemologically, axiologically, and rhetorically this study took a qualitative stance, the methodological aspects are mixed. Data collection consisted of both qualitative and quantitative sources. The analysis of these data also occurred both qualitatively and quantitatively. I believed that to establish a firm understanding of the phenomena within the relationship of organizational health and student achievement, both sources of data were needed.

Some studies have examined the relationship among organizational health factors and student achievement in elementary schools (Browne, 2002; Goddard et al., 2000; Morey, 1996; Podgurski, 1990; Spence, 2003). All of these studies employed a purely quantitative design. Initially, the first research question that guided this study was what

Maxwell and Loomis (2003) referred to as a variance question, an inquiry that establishes a relationship between variables. However, the second research question was one of process. Therefore, the research questions required an understanding of both the mathematical relationship among organizational health factors and student achievement as well as an understanding of the "context, processes and meaning for participants" (Maxwell & Loomis, p. 253). I could have only looked for a correlation among the OHI-RE measures and student achievement gain data. However, this comparison would not adequately answer the second research question, which asked about the *nature* of the relationship among organizational health factors and student achievement. Exploring the relationship among these variables in as thorough a manner as possible, required following the quantitative data collection with interviews and observations. This study benefited from the added depth and reliability of information gained from adding qualitative insight to the quantitative measures.

As noted above, while the quantitative data in the form of student achievement gain scores and OHI-RE scores provided several insights into the relationships present, qualitative information gave those insights depth and trustworthiness (Fielding & Fielding, 1986; Merriam, 1998; Yin, 2003). The qualitative data, obtained in the form of interviews and observations, enabled me to understand better the nature of the relationship among aspects of the quantitative data. First, I was able to look for congruency between the data gathered from the OHI-RE and those gathered from the interviews and observations. In addition, the qualitative data collection allowed me to listen and look for language and actions that exemplify positive or negative health in

schools. Furthermore, the interviews and observations allowed a much greater understanding of the participants' perceptions of the health of their schools. In this sense, these qualitative data enabled a much deeper understanding of the relationship that exists between organizational health and student achievement. This knowledge fed the understanding of the quantitative data, and the quantitative data fed the understanding of the qualitative data. The relationship between the two phases of the research was reciprocal; I constantly compared the two sets of findings in the analysis phase (Merriam, 1998). Therefore, in addition to ensuring a greater level of trustworthiness (Merriam), these data gave me a much clearer understanding of the schools in question and therefore a much clearer understanding of the relationships among organizational health factors and student achievement in those schools. The combination of the quantitative and qualitative data collection methods in this study both strengthened the study's internal reliability and increased the depth of understanding of the relationship between organizational health and student achievement gains in these schools. Therefore, this mixed methods study encompassed three purposes of mixed methods studies as outlined by Greene, Caracelli, and Graham (1989). First, methods were mixed for purposes of triangulation. The second purpose was development. The quantitative data informed the qualitative data. Finally, the purpose of expansion was met through mixing methods. Using both qualitative and quantitative methods added depth and width to the study.

I employed a quantitative/qualitative or QUAN/qual design (Tashakkori & Teddlie, 1998). The OHI-RE and standardized testing data from the TVAAS system provided the quantitative data for the study. The quantitative data led to qualitative

interviews and observations, which in turn served to verify the quantitative data, and therefore triangulate the research. Since the interviews and observations occurred after the quantitative data collection, this study followed Maxwell and Loomis's (2003) sequential mixed-methods design.

Type of Design

This study employed a dominant-less dominant QUAN/qual design (Tashakkori & Teddlie, 1998) which ran the quantitative and qualitative data collection methods sequentially (Maxwell & Loomis, 2003). The quantitative phase of the study occurred first and then led into the qualitative phase of the study. The quantitative data were dominant because they drove the qualitative data collection process. Sites used in the qualitative phase were determined from the results of the quantitative analysis.

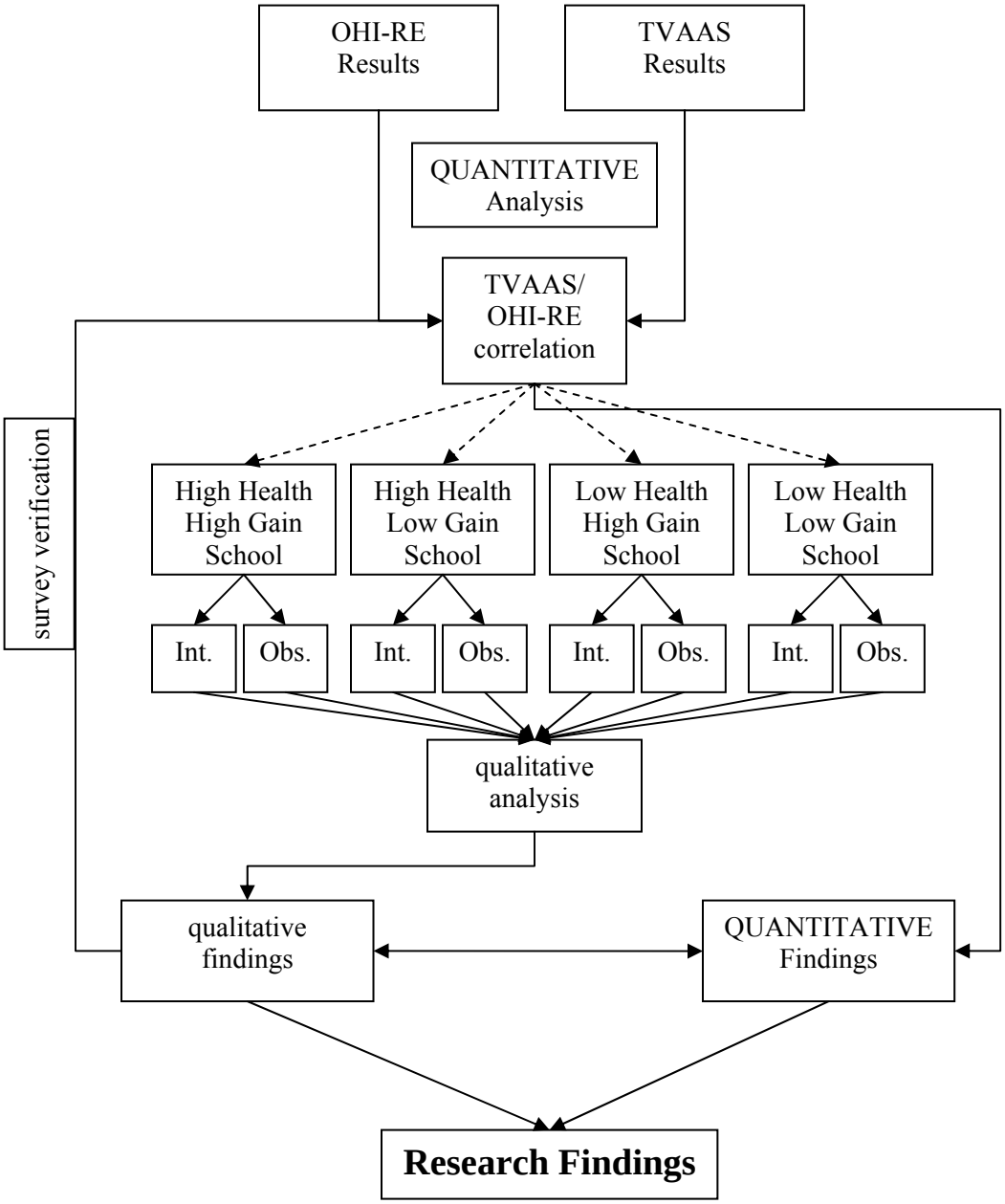
The unit of analysis for this study was the school. Variables of organizational properties affect climate studies, so an aggregate score for the school's organizational health was fitting for the purpose of this research (Hoy & Hannum, 1997; Sirotnik, 1980). Aggregate achievement gain scores for the schools were also used. These data were used in tests of correlation. The first set of correlation tests were the Pearson Product Moment Correlation Coefficient (Pearson's *r*) run with the OHI-RE scores and the average value-added scores of the school for the past three years in math, reading, science, social studies, and the overall three-year average of these four subject areas. The Pearson *r* was also run with the schools' subscale scores in the five areas of organizational health, academic emphasis, teacher affiliation, collegial leadership, resource influence, and institutional integrity, and the value added gain scores in math, reading, science, social

studies, and the overall subject average. The value-added scores, through hierarchical linear modeling, have controlled for such potentially biasing factors as socioeconomic status, ethnicity, and transience. In order to relate this study to previous research, the three-year average NCE scores for students in reading math, science, and social studies were also correlated with the organizational health scores for each school.

The design employed in this study is graphically depicted in Figure 3. The information from the quantitative correlation between the OHI-RE and the TVAAS data were supported with qualitative interviews and observations at four elementary schools. These schools were selected based on their OHI-RE and value-added scores. A more detailed description of this selection process follows in a later section. The data from the interviews and observations were used to verify the results of the OHI-RE as well as to gain more in-depth insight into the health of the schools.

Role of the Researcher

I am an employee at one of the schools in the school system under study. I am currently in my second year as an administrative assistant at this school. I have also been a fifth grade teacher within this system for six years at a different school and a teaching intern for one year prior. My position in the school system did not provide automatic permission to conduct research in the system. Over the course of my employment in the system, I have developed professional and personal relationships with some of the other teachers and administrators in the system. Furthermore, I have heard many conversations about the strength or weaknesses of certain schools. Therefore, some prior bias exists concerning the schools involved in the research. I attempted to mitigate these potentially



Key:
Int. = Interviews
Obs. = Observations

Figure 3: Mixed Methods Research Design.

biasing influences through the use of triangulation techniques, member checks, and the use of rich data (Maxwell, 1996). More specific information about these methods follows in the Methods for Verification section. The school at which I am currently working was not eligible for participation in the qualitative phase of the study. This school was excluded from the possible sample because of the unusually high amount of interaction that I have with the staff as well as the potentially biasing influence of my supervisory position.

The potential for a researcher's bias to spoil the findings of a study is very real. However, not admitting to any bias does not make it go away. Maxwell (1996) admonished researchers to be forthright with their biases. I have thoroughly thought through any potential biasing factors and listed them. I have then taken steps to ensure that through each phase of the research, those factors did not influence my judgment. These steps included peer reviews of the interview and observation protocols during their inception, peer reviews of the research design, and member checks of the findings and analysis. Such precautions are essential in mitigating the influences of the biasing factors that I faced in this study.

Site of Data Collection

The data for this study were collected in a metropolitan consolidated school district in a southeastern state called Metro County Schools (pseudonym). The Metro County School District was once two distinct districts, Metro County Schools served the county children and Metroburg city schools served the children inside the city limits. The school districts merged in 1986. After the merger, Metro County Schools grew to be the

third largest district in its state, currently serving 56,935 students in 88 schools. Metro County Schools is not only relatively large in terms of student population, but also in geographical size. Some schools are over 30 miles apart. The populations of the elementary schools (grades K-5) range from a low of 104 students to a high of 1,045. The mean student population is 487.49 (σ = 220.65). It is clear that the schools house a wide range of populations. Overall, the system is 82.3% white, 14.0% African American, 1.7% Hispanic, 1.7% Asian, 0.3% Native American, and 0.1% Pacific Islander. The system serves a population that is 31% economically disadvantaged and 11.6% of the students receive Title I funding (Tennessee Department of Education, 2003).

Fifty-one of those schools serve kindergarten through fifth grades, serving 24,865 students attending the elementary grades, which include K-5 elementary schools, K-2 primary schools, and 3-5 intermediate schools. There are 45 elementary schools serving grades K-5, 3 primary schools serving grades K-2, and 3 intermediate schools serving grades 3-5. Of these 51 schools, 26 agreed to participate in this study. One of those schools is a primary school, which will not be included in this study because they do not receive value-added scores, as the TCAP test starts at grade three. Therefore, the survey was given to 25 schools in the system. Demographic information for the schools included in this study is displayed in Table 4. In order to protect anonymity, the schools are identified with numbers instead of their names.

Permission to conduct this research study was requested and obtained from the testing and research coordinator of the school system (see Appendix B). Permission was

Table 4

Metro Schools Demographic Information

School Number	Student Population	Number of Teachers	Number of Administrators	Attendance Rate	Percent Minority Students	Percent Economically Disadvantaged Students
1	550	40	2	93.6	42.5	75.4
2	143	14	1	92.5	25.2	95.3
3	422	26	1	96.8	14.0	10.8
4	724	43	2	95.9	10.8	14.6
5	381	26	1	94.8	33.1	57.4
6	867	48	2	94.5	4.5	33.4
7	386	24	1	95.8	29.8	40.4
8	280	26	1	94.5	20.4	70.2
9	1,195	74	3	95.8	7.4	35.2
10	436	31	2	94.2	45.2	83.3
11	739	51	2	95.4	7.2	28.8
12	720	42	2	96.1	1.7	22.7
13	668	40	2	95.0	2.7	27.6
14	999	50	2	96.5	11.3	8.7
15	495	32	2	94.0	9.1	60.3
16	200	16	1	95.3	1.5	40.6
17	278	19	2	95.3	28.4	56.2
18	506	30	1	94.5	5.7	44.8
19	858	53	2	95.7	2.4	17.0
20	406	27	1	95.8	3.7	32.9
21	449	32	2	93.3	32.5	80.5
22	438	45	2	93.4	38.4	87.8
23	431	24	1	95.9	13.7	18.8
24	629	39	1	95.8	12.7	20.1
25	653	40	2	94.5	5.1	47.4

Note. Number of teachers and number of administrators from Metro County Schools (2005); number attendance rate, percent minority students, and percent economically disadvantaged students from Tennessee Department of Education (2005)

also requested and obtained from The University of Tennessee Institutional Review Board (see Appendix C).

Data Collection Procedures

The following section describes the quantitative and qualitative data collection procedures. Quantitative data were collected in the form of value-added achievement scores and Organizational Health scores from the OHI-RE. Qualitative data were collected in the form of interviews and observations performed at schools selected through stratified random sampling techniques.

A quantitative survey, the OHI-RE (Hoy et al., 1991) was used to obtain a score for the organizational health of the schools in a metropolitan school system in the southeastern United States. Student achievement gain scores and NCE achievement scores were collected from the Tennessee Value Added Assessment System (TVAAS). Demographic data about the school and district settings were also collected from TVAAS. In order to verify and expand upon the responses of teachers and principals on the OHI-RE, the researcher performed interviews and observations. The interviews and observations were completed with a population obtained through stratified random sampling (Tashakkori & Teddlie, 1998).

Quantitative Data Collection

Quantitative data were collected in the form of value-added achievement scores and organizational health inventories from the OHI-RE. An explanation of these two data sources follows.

Tennessee Value-Added Assessment System. The Tennessee Value-Added Assessment System gathers raw data from student achievement scores on the Tennessee Comprehensive Assessment Program (TCAP). The TCAP is an annual criterion referenced test given to Tennessee students in grades three through eight. The use of the TVAAS provides several advantages for this study over the use of raw achievement scores. First, TVAAS data show the effect that schools have on student gains in learning while remaining unencumbered by factors such as socioeconomic status and IQ that typically confound test results (Ballou, Sanders, & Wright, 2004). Second, through the use of the mixed-model method, incomplete records stemming from student mobility or absence from the test can still be used in computing the school's or teacher's value added score (Sanders et al., 1997).

The first benefit offered by TVAAS, controlling for factors such as socioeconomic status that have shown to affect test scores, is accomplished by taking a parsimonious statistical approach. Each individual student is used as his or her own control, and therefore blocks other statistically mitigating factors from interfering with the validity of the gain scores. Several people have criticized TVAAS for this claim. Ballou et al. (2004) answered some of these criticisms when they analyzed the TVAAS data while controlling for factors such as socioeconomic status. They found that such factors had negligible effects when applied to individual students and erratic and unreliable effects when applied at the school and grade level. They concluded that the TVAAS data were sound without adding factors to the equation that control for socioeconomic status.

The second benefit of TVAAS is the ability of it to accommodate incomplete records. This is accomplished using mixed-model statistics, which is a method that has been used extensively in the genetics field. Pioneered by Henderson, an animal breeding expert at Cornell University, the mixed-model method "enables a repeated-measures, multivariate response analysis allowing the inclusion of all of the information available for each student regardless of the degree of missing information" (Sanders et al., 1997, p. 137). This means that any student record can contribute to the value added calculations, no matter how fragmented that record may be. The ability of TVAAS to include incomplete records solves a problem faced by many school systems. Students move frequently from school to school. They also miss parts of tests. Information is often incomplete, and sometimes papers are lost. With TVAAS any record can be used, therefore allowing more students to contribute to a more accurate understanding of a school's value added scores. Data with missing records, however, do not carry as much weight as do complete records. Shrinkage estimates place more emphasis on records that are more complete than those that are less so. The more data contained in a student's record, the more weight they will carry when factored into the value added scores of the system, school and teacher (Sanders et al., 1997).

In order for the TVAAS to make accurate measures of gain scores, a longitudinally merged database must be kept to house the test results of all of the students in the state. Furthermore, the tests taken by the students must be vertically linked, so that an accurate comparison between school years can be made (Ballou et al., 2004)

Placing a quantified measure on the effects that a school has on student learning is by no means a straightforward or simplistic endeavor. The TVAAS offers one of the most prominent and rigorous methods for doing so. TVAAS calculates value added scores on the system, school, and teacher levels. For the purpose of this study, only school value added scores will be utilized. Since the organizational health measures will yield a school-level score, the aggregate school value added scores are the appropriate data to look to for potential relationships (Sirotnik, 1980). While it by no means is a summation of all of the impact that a school has on a student, the school's value added score does provide a reliable measure of the typical gain made by students in the school. Therefore, TVAAS data are well suited for this study.

TVAAS views the score of a student as a composite of a few factors. On the school level, the system it uses to do so is $y_{ioklmn} = \mu_{ioklm} + e_{ioklmn}$

> where y_{ioklm} represents a test score in the m^{th} subject for the n^{th} student, and this student was in the i^{th} school system, o^{th} school, k^{th} year, and l^{th} grade, and; μ_{ioklm} is the fixed school mean score for all students in the i^{th} school system, o^{th} school, k^{th} year, l^{th} grade, and m^{th} subject; and e_{ioklmn} is the random deviation of the test score for the n^{th} student from the school mean. (Sanders et al., 1997, p. 147)

TVAAS encompasses very complex statistical measures to arrive at school-level gain scores. A simplistic explanation of how those gain scores are calculated follows. For a detailed description of the statistical methods employed, refer to Sanders et al. (1997) and TVAAS (2006). Student NCE scores are compared from year to year. A student with a 70^{th} percentile NCE on the 4^{th} grade test and a 70^{th} percentile NCE score on the fifth

grade test has made progress on par with his peers. That student has a gain score of 0.0. Positive gains correspond to more than one year's growth and negative gains correspond to less than one year's growth. School gain scores are calculated by averaging the gain scores of individual students in the school (Sanders et al., 1996; TVAAS, 2006).

Schools with students that make gains equal to the state's gains are considered to make average gains. Schools are given letter grades of A, B, C, D, or F based on how the gains of their students compare with the expected gains of students across the state. Table 5 shows the grade scale for the 2005 value added data. The state growth standard is 0.0, which represents one year's growth. This standard was derived from the gains made by students on the 1998 TCAP (TVAAS, 2006).

It is worth noting, however, that TVAAS was never meant to be used solely as a summative assessment tool. Sanders and Horn (1998) stated that an often-overlooked strength of the TVAAS system is for it to serve as a formative assessment tool. This aspect of the TVAAS system provides educators of all levels with an enormous amount of data to assist them in improving educational practices. Teachers and building level administrators receive reports of disaggregated data, summarizing their students' performance on all skill areas covered by the test. Teachers can identify which, if any, skills with which their students had difficulty. This information can, in turn, be an impetus for improving teaching strategies on that particular skill. In addition, grade levels can look at the data to see if students across that level were lacking in any particular skill. Then, the grade level teachers can collaborate to find more effective ways of imparting that information (Sanders & Horn).

Table 5

2005 TVAAS Grade Scale

Grade	Status	Mean Gain Range			
		Reading/ Language Arts	Math	Science	Social Studies
A	Exceptional	> 1.2	> 1.5	> 0.6	< 0.4
B	Exceeds State Growth Standard	0.7 to 1.2	0.5 to 1.5	-0.2 to 0.6	-0.1 to 0.4
C	Maintains State Growth Standard	-0.1 to 0.6	-0.5 to 0.4	-1.1 to -0.3	-0.8 to -0.2
D	Below State Growth Standard	-0.6 to -0.2	-1.9 to -0.6	-1.9 to -1.2	-1.6 to -0.9
F	Deficient	< -0.6	< -1.9	< -1.9	< -1.6

Note. 1 represents one year's academic growth. From State of Tennessee. (n.d.) *State of Tennessee report card 2005: How to interpret the grade scale*. Retrieved June 27, 2005, from http://www.k-12.state.tn.us/rptcrd05/gradescale.htm

For the purposes of my study, gain scores at the school level were used along with achievement scores. While this study focused on the gains that students make from year to year, the achievement scores were also considered in order to compare the findings to previous studies. Furthermore, only data from the school system under study were observed. This study will examine the demographic information of the schools for informational purposes only. TVAAS provides these data, which are collected by the state department of education on a yearly basis.

The value-added scores were obtained through the Tennessee Value-Added Assessment System (TVAAS) in the subjects of math, reading, science, social studies, and the core subject average for each of the elementary and intermediate schools involved in this study. These scores are available to the public through the Tennessee State Report Card, which is provided by the Tennessee Department of Education. (Tennessee Department of Education, 2003). These value-added scores are available for all schools in the State of Tennessee on the Department of Education website. Only the aggregate school scores were collected. No individual student or teacher scores were collected for any of the sites involved in this study. Value-added scores were collected for the TCAP test given in April of 2006.

For the purposes of this study, the average gains of fourth and fifth grade students over three years were used. The three-year average scores provided a more stable assessment of the gains that students made at the school. These results are displayed in Table 6.

Table 6

Three Year Average and 2006 Student Value-Added Gain Scores

	Reading		Math		Science		Social Studies		Core Subjects	
School	3 year Avg.	2006	3 year Avg.	2006	3 year Avg.	2006	3 year Avg.	2006	3 year Avg.	2006
1	2.8	3.6	4.2	1.7	0.9	1.0	2.0	5.6	2.475	2.975
2	2.8	2.3	5.6	3.0	5.9	8.9	2.7	6.9	4.25	5.275
3	1.4	1.2	0.7	0.1	-1.0	-3.5	1.0	3.3	0.525	0.275
4	2.0	0.5	3.6	4.1	1.0	3.2	3.0	8.9	2.4	4.175
5	2.8	2.3	3.5	2.4	2.8	2.1	4.1	3.4	3.375	2.55
6	2.9	2.1	4.3	0.0	1.1	0.3	2.3	2.9	2.65	1.325
7	3.0	-0.3	4.2	1.1	2.3	3.2	2.5	2.2	3.0	1.55
8	4.0	2.0	4.7	7.2	2.5	3.5	2.9	2.2	3.525	3.725
9*		3.3		3.7		3.1		6.0		4.025
10	6.0	3.9	10.6	12.9	4.7	4.7	7.0	9.7	7.075	7.8
11	3.9	3.2	4.3	3.8	2.9	3.5	3.9	7.1	3.75	4.4
12	2.8	2.4	3.0	2.0	1.7	2.5	2.9	3.8	2.6	2.675
13	1.8	1.6	1.4	1.2	0.9	1.8	1.9	3.4	1.5	2.0
14	1.0	1.1	2.1	1.9	0.0	-0.2	1.3	4.4	1.1	1.8
15	1.1	0.2	4.5	-0.4	0.8	0.9	1.5	1.7	1.975	0.6
16	3.3	3.4	3.3	8.3	0.9	-1.9	1.5	4.8	2.25	3.65
17	2.4	3.6	3.5	2.4	1.8	-0.4	2.1	3.0	2.45	2.15
18	5.7	5.0	8.2	10.1	5.6	6.9	8.4	10.5	6.975	8.125
19	1.4	-0.6	1.6	0.4	1.3	1.1	2.7	4.5	1.75	1.35
20	4.2	4.5	4.8	5.1	1.7	2.6	5.1	9.1	3.95	5.325
21	3.4	1.9	6.9	3.4	-0.3	-0.5	3.4	5.0	3.35	2.45
22	-0.7	-0.8	3.2	5.2	-0.9	1.1	1.7	8.9	0.825	3.6
23	2.3	5.0	4.8	2.8	0.3	-0.4	4.2	4.5	2.9	2.975
24*		1.9		2.9		2.8		4.0		2.9
25	3.1	4.9	7.0	9.6	3.1	6.2	3.7	9.5	4.225	7.55

Note. Schools 9 and 24 have been in existence less than three years. Therefore, neither have three-year average value-added scores.

While I considered the three-year average value-added scores of student achievement gains to be a more reliable measure of students' progress in the schools, two of the schools in the study had only been in existence for one year. Therefore, they only had one year of gains to report. With that in mind, I also examined the achievement gains from the 2006 school year for each of the schools. These gain scores are also listed in Table 6. Furthermore, the three-year average achievement scores from each school were examined in order to relate the findings from this study to the findings of previous research. The average NCE score for each of the core subject areas, reading, math, science, and social studies obtained by the schools in this study are listed in Table 7.

Organizational Health Inventory–Elementary Level. The OHI-RE was developed by Podgurski (1990) and later refined by Hoy and Tarter (1997) for the purpose of gauging the well-being of a school's organizational health in elementary schools. It is based on the work of Hoy and his colleagues (Hoy & Feldman, 1987; Hoy & Hannum, 1997; Hoy et al., 1991), who developed OHI instruments for secondary and middle schools. The OHI-RE was chosen for this study because of its firm, well-tested foundation in research, its strong progression through its various forms (OHI-S, OHI-M, OHI-RE), and because of its ease of use. The instrument takes approximately 10 to 15 minutes to complete.

The first OHI was developed for use in secondary schools (Hoy & Feldman, 1987). With success in the secondary schools, Hoy and Hannum (1997) went on to use the OHI-M, a revised version of the OHI-S, in middles schools. Podgurski (1990) first

Table 7

Three Year Average NCE Scores

School	Reading	Math	Science	Social Studies
1	44	49	42	43
2	38	41	40	36
3	73	76	71	70
4	65	67	61	63
5	49	50	48	50
6	54	59	53	53
7	50	54	51	52
8	52	53	50	48
9	59	62	58	58
10	40	41	38	39
11	55	59	56	55
12	55	58	55	55
13	53	56	52	52
14	65	69	64	64
15	47	50	45	44
16	53	56	51	51
17	55	58	53	54
18	49	51	51	50
19	61	66	59	59
20	55	59	53	55
21	45	51	43	44
22	45	51	44	43
23	59	65	59	60
24*				
25	49	52	51	51

Note. School 24 has obtained a new population of students, therefore it does not yet have three-year average achievement scores.

developed the OHI-RE for his dissertation, with Hoy as his chair, and Hoy and Tarter (1997) later published the instrument with a few minor changes.

The OHI series of instruments measure the climate of a school. They do so by putting the organizational theories of Miles (1969), Etzioni (1975), and Parsons et al. (1953) in operational subsets of the concept they term organizational health. The elementary school version of the OHI measures five subsets: institutional integrity, academic emphasis, teacher affiliation, resource influence, and collegial leadership. The reliability for each of these areas has proven to be relatively high. The scores for each scale are as follows: institutional integrity (.90), collegial leadership (.95), resource influence (.89), teacher affiliation (.94), and academic emphasis (.87). Once scores for each of the five areas are obtained, an overall health score is calculated for the school. All of the scores are reported as scale scores (SdS) with a mean of 500 and standard deviation of 100. The use of scale scores allows the schools to be compared to others that have taken the OHI-RE.

The OHI-RE is a 37-item four point Likert-type survey completed by the teachers and the principals of a school (see Appendix A). Questions concern each of the five aforementioned areas of organizational health outlined by Hoy and his colleagues (1987, 1990, 1993, & 1997). Those areas include academic emphasis, teacher affiliation, collegial leadership, resource influence, and institutional integrity.

The survey items provide illustrations of the components of organizational health. For the institutional level the question "Teachers feel pressure from the community," is an example of one that judges institutional integrity. The managerial level has questions

like, “The principal discusses classroom issues with teachers,” for collegial leadership, and “The principal gets what he or she asks for from superiors,” for resource influence. The technical level is gauge by questions like “Teachers like each other at this school,” for teacher affiliation and “Students neglect to complete homework,” for academic emphasis.

The OHI-RE was administered to 25 elementary and intermediate schools in the Metro County School System. The survey was completed by teachers, principals, and assistant principals during faculty meetings held at the individual schools. Teachers and building-level administrators completed the same survey. A teacher from the school was selected to administer the OHI-RE, and instructions were provided to him or her for administering the OHI-RE (see Appendix D). No personally identifiable information was collected on the survey. The surveys were only identified with the coded number that corresponds to the school from which they originated.

A total of 933 surveys were distributed to 25 schools. These schools returned 741 surveys, yielding an overall return rate of 79.42% for this study. Results from the OHI-RE provided scale scores for both overall organizational health as well as each of the five individual components. Permission was obtained from Wayne Hoy to use this instrument (see Appendix E). The raw scores for the schools were standardized based on a sample of diverse elementary schools in New Jersey (Hoy & Tarter, 1997). The results of the OHI-RE and the percentage of returned surveys for the schools in this study are shown in Table 8.

Table 8

OHI-RE Results

School Number	Return Rate	Institutional Integrity	Collegial Leadership	Resource Influence	Teacher Affiliation	Academic Emphasis	OHI-RE Index
1	79%	569.63	826.86	526.53	632.58	384.38	588.00
2	47%	580.35	818.67	596.43	671.43	314.73	596.32
3	93%	455.96	874.02	768.55	775.17	596.86	694.11
4	38%	446.73	725.51	558.95	653.10	536.18	584.10
5	96%	606.08	781.67	457.63	560.25	284.03	537.93
6	76%	557.45	850.44	576.23	684.59	418.77	617.50
7	84%	553.27	716.06	481.83	556.38	413.72	544.25
8	89%	615.70	711.29	547.89	652.85	406.08	586.76
9	66%	545.05	800.15	618.98	679.37	483.11	625.33
10	100%	608.11	745.02	580.81	656.70	373.45	592.82
11	72%	550.73	718.83	549.70	669.41	458.89	589.51
12	100%	488.99	735.14	617.64	677.47	469.43	597.73
13	90%	588.48	815.42	594.93	707.38	501.52	641.54
14	100%	471.38	832.56	559.27	698.97	511.41	614.72
15	100%	587.52	774.68	529.67	575.35	374.86	568.42
16	88%	613.85	772.18	525.00	668.23	483.65	612.58
17	100%	577.62	830.72	554.19	647.02	486.94	619.30
18	90%	556.71	829.71	603.23	725.55	377.63	618.57
19	40%	515.83	810.67	601.58	715.30	532.87	635.25
20	64%	553.67	793.90	543.08	718.79	503.30	622.55
21	100%	529.60	765.01	486.11	580.88	334.80	539.28
22	34%	507.53	816.80	574.40	669.63	347.64	583.20
23	64%	520.37	720.77	534.42	668.93	501.47	589.19
24	93%	600.62	747.54	556.66	647.98	445.74	599.71
25	95%	554.42	657.45	478.89	685.03	432.20	561.60

OHI-RE score ranges and their implications for the health of a school are displayed in Table 9. As shown in the table schools can range from a very high health classification to a very low one.

Qualitative Data Collection

The qualitative research of this study took place at school sites selected through purposeful sampling. Since the OHI-RE index scores for the 25 schools in this study did not vary greatly, I felt that further investigation into the nature of organizational health at outlying buildings was warranted. Therefore, the schools were stratified based on their organizational health index scores and their core subject area three year average value added scores relative to those of the rest of the group. The relationship between the schools' organizational health index scores and their core subject area value-added scores is shown in Figure 4.

Table 9

Range and Implication of OHI-RE scores

OHI-RE Score	Percentile Rank	Health Classification
800	99th	Very High
700	97th	
600	84th	
500	50th	Average
400	16th	
300	3rd	
200	1st	Very Low

Note. From Hoy and Tarter (1997)

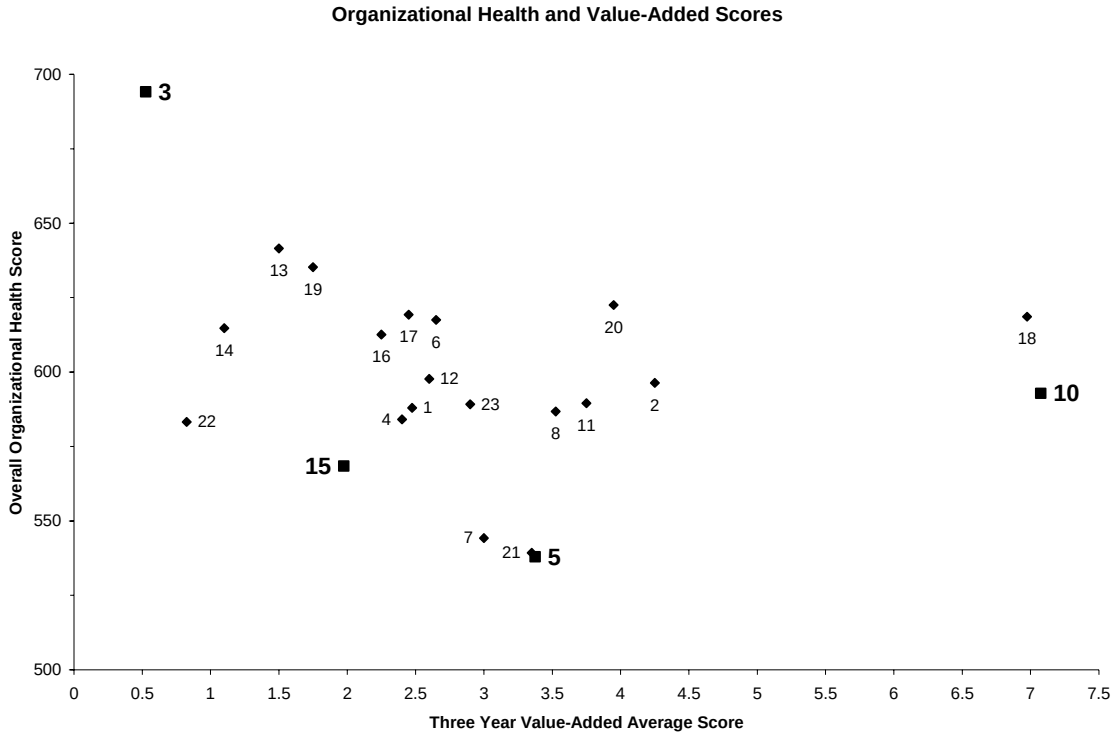


Figure 4. Relationship between Overall OHI-RE Index and Value-Added Scores.

All of the schools under study scored above average on the OHI-RE. Therefore, the four schools selected for qualitative analysis, shown in bold in Figure 4, were selected based on their relative position to the group. School 10 coupled a relatively high OHI-RE index (592.82) with the highest value-added average of the 25 schools (7.075). School 10, for ease of reference, will be referred to as School 10 ($High_{OHI}High_{VA}$). School 3, which will be referred to as School 3 ($High_{OHI}Low_{VA}$), had the highest OHI-RE index score (694.11), but the lowest value-added gains (0.525). School 5 had a relatively high value-added gain (3.375) with the lowest OHI-RE index of the schools surveyed (537.93), and will be referred to as School 5 ($Low_{OHI}High_{VA}$). Finally, school 15, shown as School 15 ($Low_{OHI}Low_{VA}$), had a relatively low OHI-RE index (568.42) and a

relatively low value-added gain (1.975). These four schools were studied using interviews and observations in order to gain a fuller understanding of the organizational health in those buildings. Table 10 shows the demographic information for each school selected through the sampling process.

At each of these four schools, the researcher selected two teachers who are in full-time teaching positions for interviews. Paraprofessionals and traveling staff such as speech therapists or some music and physical education teachers were excluded from the sample because they work at more than one school. The researcher felt that these teachers would possibly give a less credible interpretation of the organization's health than school faculty who experienced the school's climate every day. In addition to the teachers selected at each site, the principal was interviewed at each school. Upon completion of the interviews, I performed observations at the schools.

Interviews. The interviews in this study were seen as a journey taken with the participants. I sought to walk along the participants' world and "capture the multitude of subjects' views of a theme and to picture a manifold and controversial human world" (Kvale, 1996, p. 7). With this in mind, I have taken care to develop an interview protocol that is conducive to such a journey (see Appendix F and Appendix G). At each of the four sites, two teachers and the principal were interviewed. The demographic information of the interviewees can be found in Table 11.

Two sets of interview protocols were developed for this study. One protocol was utilized with the teachers (see Appendix F) and the other was designed for the principals (see Appendix G). The teacher protocol contained 15 questions, and the principal

Table 10

Demographic Information on Qualitative Data Collection Sample

School Number	Economically Disadvantaged	Number of Teachers	Number of Students	Grades Served	Value-Added (3 year average of core subject areas)	OHI-RE Index
10 $High_{OHI}$ $High_{VA}$	83.3%	31	436	K-5	7.075	592.82
3 $High_{OHI}$ Low_{VA}	10.8%	26	422	K-5	0.525	694.11
5 Low_{OHI} $High_{VA}$	57.4%	26	381	K-5	3.375	537.93
15 Low_{OHI} Low_{VA}	60.3%	32	495	K-5	1.975	568.42

protocol contained 14 questions. Hoy's research on organizational health served as a conceptual framework guiding the development of the interview questions. Questions from the interviews dealt with each of the five areas of organizational health as outlined by Hoy and Tarter (1997). An example of a question dealing with the institutional level factor termed institutional integrity was, "Describe a time when a community organization was involved with the school." A question from the managerial level concerning collegial leadership was, "What does the principal expect of you?" Also from the managerial level, a question about resource influence asked to the principal was, "What kind of relationship do you have with your superiors?" A query about teacher affiliation from the technical level was "Describe your relationships with other teachers at

Table 11

Interviewee Demographic Information

Participant	Years at This School	Years in Education	Ethnicity	Gender
School 10 $High_{OHI}High_{VA}$				
Principal	3	12	White	Female
Teacher 1	4	5	White	Female
Teacher 2	3	3	White	Female
School 3 $High_{OHI}Low_{VA}$				
Principal	8	32	White	Female
Teacher 1	18	20	White	Female
Teacher 2	15	21	White	Female
School 5 $Low_{OHI}High_{VA}$				
Principal	1	7	White	Female
Teacher 1	16	16	White	Female
Teacher 2	26	26	White	Female
School 15 $Low_{OHI}Low_{VA}$				
Principal	1	28	White	Female
Teacher 1	5	5	White	Female
Teacher 2	8	8	White	Female

this school." A question about academic emphasis, also from the technical level of control was, "How do you decide what to teach?" The interview protocols for both teachers and principals were developed using Hoy and Tarter's framework for organizational health. As shown in Table 12, the questions for the interviews touch on each of the five areas of organizational health for elementary schools.

The interview protocol was subjected to a rigorous process of peer-review and question analysis. As shown in Table 13, questions were categorized according to their type as defined by Patton (in Maxwell, 1996). Patton outlines six question types. The first categorization is for experience/behavior questions aimed to gain insight into experiences, actions, or behaviors. The second question type is the opinion/value question. This question seeks a person's goals, values, and desires. The third classification of question according to Patton is the feeling question, which is geared

Table 12

Relevance of Interview Questions to Areas of Organizational Health

	Interview Questions	
Organizational Health Area	Teacher Protocol	Principal Protocol
Academic Emphasis	T3, T6, T8, T9, T12, T15	P6, P7, P9
Teacher Affiliation	T2, T13	P2, P11
Collegial Leadership	T11, T14	P12, P13
Resource Influence	T7, T4	P3, P4, P10, P14
Institutional Integrity	T5, T10	P5, P8

Table 13

Question Type Analysis

	Interview Questions	
Question Type	Teacher Protocol	Principal Protocol
Experience/Behavior	T1, T3, T4, T5, T7, T14, T16	P1, P3, P4, P7, P8, P9, P10, P11, P13
Opinion/Value	T8, T12, T13, T15	P5, P6, P12, P14
Feeling	T2	

Note. T refers to the teacher interview protocol. P refers to the principal interview protocol. The numbers refer to the interview protocol question number.

toward ascertaining a person's emotional response to a query. The final three types of questions are knowledge, sensory, and background. Knowledge questions ask the interviewees to describe what they consider factual information regarding the research topic. Sensory questions attempt to discover the respondent's sensitivity to stimuli. The background questions include simply demographic information. None of these questions were included in the protocol because that information was obtained prior to the interview. Knowledge and sensory questions were not included because they were not appropriate for this study.

The interviews were conducted at the four chosen schools in a semi-structured format (Merriam, 1998). I followed the protocol, but also took advantage of opportune moments in the interview to gain useful insight from following another path of inquiry. I conducted interviews at each site until the point of saturation was reached. The interviews were tape recorded and later transcribed for the purpose of analysis. The participants

were assured of confidentiality. For the purpose of presenting this study's findings, pseudonyms have been used. Teachers are referred to as Teacher 1 or Teacher 2 from their respective schools. The principals are simply referred to as Principal of their respective schools. Tapes and transcripts of the interviews are stored in a locked filing cabinet in an office at The University of Tennessee.

Observations. In addition to interviews, data were collected through observations at each of the four schools. I performed one observation at each school. They took place in the hallways, offices, and classrooms. I employed a direct observation technique (Yin, 2003). These observations were guided by a protocol that was developed around the conceptual framework of organizational health. This protocol helped me focus on the aspects of organizational health (see Appendix H). The protocol consisted of a time sheet with sections for each area of organizational health. I made a notation on the time sheet each time I witnessed evidence of high or low organizational health in any of the five component areas. These notations were supplemented by the use of a field journal, which contained additional notes taken during the observation time. I also made notes in this journal immediately following the observation (Kirk & Miller, 1986).

Data Analysis Procedures

Quantitative Analyses

The OHI-RE was scored to obtain both overall OHI-RE scores for the schools and subscale scores in each of the five areas of organizational health outlined by Hoy and Tarter (1997): institutional integrity, academic emphasis, teacher affiliation, resource influence, and collegial leadership. The data from the OHI-RE were explored to find any

possible correlation with the value-added student scores. The Pearson Product Moment Correlation Coefficient was run with the overall OHI-RE score for each school and the value-added gain score for each school using SPSS software. The Pearson *r* was found for each subset of the OHI-RE and the value-added scores. All of these tests were performed with an alpha level of less than or equal to 0.05 ($p \leq 0.05$), a standard probability level for the field to education. In addition, I also examined the OHI-RE scores for any possible correlations with student achievement scores as reported in normal curve equivalent form. The Pearson *r* was also used to perform these tests. The OHI-RE scores were also used to delineate stratification for the classification of schools as having high or low organizational health.

Qualitative Analysis

The data from the interviews and observations were imported into NVivo 7 software for analysis. The interviews were transcribed and later coded using NVivo 7. These codes were developed according to Boyatzis's (1998) thematic analysis and code development process. I used the theory-driven code development process described by Boyatzis. In this approach, I used Hoy's (1997) work on organizational health as a conceptual framework upon which to base my codes. I then grouped these codes into themes, which went through several iterations before they eventually answered the research question.

Each code was developed around themes derived from the framework of organizational health. The interviews were analyzed for evidence that supported or contradicted the organizational health scores that the school received. Furthermore, data

from the interviews were examined to determine any possible similarities or differences among the schools selected for qualitative analysis based on their achievement gains and organizational health scores. Therefore, all of the themes of the qualitative research are a priori, occurring before the data were collected (Constas, 1992). Observations were also conducted, which served to provide a stronger understanding of the context of each of the buildings. These observations allowed me to experience the schools' climates first hand. The theory driven approach to code development (Boyatzis, 1998) was strengthened using Merriam's (1998) constant comparative analysis technique. As I examined pieces of data, I made tentative codes. I then compared those ideas to other pieces of data, modifying codes as necessary throughout the process. These codes were then analyzed in light of still other data until themes were developed. As shown in Table 14, the development went through three iterations. The first iteration consisted of the initial codes for the data. These codes were then grouped in the second iteration to comprise clusters of similar findings (Anfara, Brown, & Mangione, 2002). These clusters were then classified in the third iteration under the dimension of organizational health with which they corresponded. Codes labeled AE_1 were grouped into cluster AE_1, which indicates the first cluster under the theme of academic emphasis. Clusters AE_1, AE_2, and AE_3 were grouped into the theme of academic emphasis. The same process was used to obtain themes from the other four areas of organizational health.

The qualitative data gathered through the interviews and observations not only triangulated the quantitative findings, but also expanded upon them. The qualitative data analysis allowed a more thorough examination of the organizational health status of each

Table 14

Code Map

Dimensions of Organizational Health (Themes)				
Academic Emphasis	Teacher Affiliation	Collegial Leadership	Resource Influence	Institutional Integrity
Second Iteration (Clusters)				
AE_1 Expectations	TA_1 Staff Relationships	CL_1 Goal Setting	RI_1 Allocation priorities	II_1 Parent Participation
AE_2 Curriculum	TA_2 Staff Perception of Students	CL_2 Teamwork	RI_2 Perception of efficaciousness	II_2 Community Support
AE_3 Help for Strugglers	TA_3 Staff Perception of School	CL_3 Use of Teacher Ideas	RI_3 Connections with superiors	
First Iteration (Codes)				
AE_1 Academic growth *AE_1* Behavioral growth *AE_1* Reach the top	*TA_1* Family	*CL_1* Collaborative goals *CL_1* Continuous analysis of goals *CL_1* Data-based goals	*RI_1* Allocate money toward student learning	*II_1* Go to the parents *II_1* Strong parent involvement *II_1* Bring the parents into the school
AE_2 Extend the state curriculum *AE_2* Teach the state curriculum *AE_2* Teach to their level	*TA_2* The kids need you here *TA_2* We have the top students *TA_2* We have a diverse student body	*CL_2* Hiring is a team decision *CL_2* More teamwork is occurring	*RI_2* Principal fights for the school *RI_2* Principal gets it done *RI_2* Principal got the hallways painted	*II_2* Look outside the school zone *II_2* Plenty within the zone *II_2* Use what the area can offer
AE_3 Packaged programs for strugglers *AE_3* After school tutoring for strugglers	*TA_3* Proud of accomplish-ments *TA_3* Rough past	*CL_3* Principal uses teacher ideas despite reservations *CL_3* Principal uses teachers' ideas	*RI_3* Connections with superiors gained from previous experience	

Note. Read table from the bottom to the top.

of the four schools. This in turn allowed a much more meaningful understanding of the information provided by the OHI-RE.

Methods for Verification

The data obtained were verified according to Yin's (2003) data source triangulation. The sources of data employed were the survey instrument OHI-RE, school value-added gain scores, school achievement scores, semi-structured interviews, and direct observations. I used these sources of data to triangulate the findings and analyze the information from the OHI-RE, interviews, and observations appropriately. The interview responses and observations were checked against the OHI-RE results for consistency, and vice versa. Consistency among these sources of data helped assure internal reliability (Merriam, 1998).

The purpose of these interviews and observations was to triangulate and expand the quantitative findings (Greene et al., 1989). Results from the qualitative analysis were analyzed and then compared to the results of the quantitative analysis. Through this comparison, I triangulated the findings of both phases of the research as well as gained a reciprocal insight into the data. In the final comparison, I gained new insights into the quantitative data through the benefit of having the qualitative data and garnered better understand the qualitative data through reflection on the quantitative data.

In addition, the observations followed a predetermined framework that allowed me to focus only on the elements of organizational health during the observations (Merriam, 1998). To verify further the findings of the study, member checks were performed after the analysis phase of the research was complete. These member checks,

done by teachers at the schools under study, provided a unique insight into the data that the researcher would otherwise not notice.

Summary

This study employed a mixed methods design for purposes of triangulation, development, and expansion (Greene et al., 1989). Utilizing Hoy and Tarter's (1997) work on the organizational health of elementary schools as a conceptual framework, the study explored the nature of the relationship of organizational health factors and student value-added gains at the elementary school level. The quantitative data came from the OHI-RE assessment of school health, value-added test scores, and student achievement scores from TVAAS. The qualitative data, in the form of interviews and observations, were obtained from four schools: one high organizational health, high value-added gain school; one high organizational health, low value-added gain school; one low organizational health, low value-added gain school; and one low organizational health, low value-added gain school. These data served to triangulate and expand upon the quantitative data.

CHAPTER IV

FINDINGS

Due to the nature of the research questions, both quantitative and qualitative data were utilized in this study. This chapter will begin with a discussion of the quantitative findings, which answers the first research question: What is the relationship among organizational health factors (Academic Emphasis, Teacher Affiliation, Collegial Leadership, Resource Influence, and Institutional Integrity) and student achievement gains in the selected elementary schools of a southeastern metropolitan school system? In the next section, the discussion of the qualitative findings will answer the second research question: What is the nature of organizational health factors at healthy and unhealthy schools?

Quantitative Findings

In order to answer the first research question, a statistical analysis of the organizational health and student achievement gains in the identified elementary schools was required. The null hypothesis for the first research question states that there is no relationship among organizational health factors and student achievement gains, H_o: $\rho = 0$. This section will begin with a discussion of the relationships among each subscale of organizational health and student achievement gains and student achievement percentile scores in the areas of reading, math, science, and social studies. This discussion is followed by an explanation of the statistical relationship between the overall OHI-RE index and student achievement gains in 25 elementary schools.

Academic Emphasis

The analyzed data revealed some significant relationships that existed between the subscale of academic emphasis and student achievement gains. Moderate significant relationships were found between academic emphasis and student achievement gains in various subject areas. One significant relationship was a moderate negative correlation between 2006 science gains and academic emphasis ($r = -.444$, $p < 0.05$). The coefficient of determination indicated that this area of organizational health was responsible for 19.7% of the variation in 2006 science gains ($r^2 = 0.197$). A moderate negative relationship ($r = -.552$, $p < 0.01$) existed between academic emphasis and the three year average of student achievement gains in math. Upon calculation of the coefficient of determination, academic emphasis was shown to account for 30.5% of the variation in math gains ($r^2 = 0.305$). Furthermore, a moderate negative relationship existed between the three year average gains in science and academic emphasis ($r = -.438$, $p < 0.05$), which indicated that academic emphasis accounts for 19.2% of the variation in science gains ($r^2 = 0.192$). A moderate negative relationship ($r = -.447$, $p < 0.05$) also was found between academic emphasis and the three year average of student achievement gains across the core subject areas of reading, math, social studies, and science. The coefficient of determination revealed that academic emphasis was responsible for 20.0% of the variation in gains made across the four core subject areas ($r^2 = 0.200$). The r values corresponding to these relationships are displayed in Table 15.

While the significant relationships between student value-added gains and academic emphasis were inverse, student achievement (3 year NCE) and academic

Table 15

r Values for Academic Emphasis Compared with Value-Added Student Achievement Gains and Student Achievement

	Reading	Math	Science	Social Studies	Core Subjects
2006 Gain (N=25)	-.028	-.229	-.444*	-.110	-.278
Significance (2-tailed)	.894	.270	.026	.601	.033
3 year Gain (N = 23)	-.234	-.552**	-.438*	-.281	-.447*
Significance (2-tailed)	.283	.006	.037	.193	.178
3 Year NCE (N = 24)	.877**	.872**	.856**	.858**	NA
Significance (2-tailed)	.000	.000	.000	.000	NA

Note. ** Correlation is significant at the 0.01 level (2-tailed), * Correlation is significant at the 0.05 level (2-tailed).

emphasis appeared to have a strong direct relationship. Reading (3 year NCE) showed a marked relationship with academic emphasis ($r = .877$, $p < 0.01$). The coefficient of determination revealed that academic emphasis accounted for 76.9% of the variation in reading achievement (3 year NCE) ($r^2 = 0.769$). Academic emphasis also had a strong direct relationship with student achievement (3 year NCE) in math ($r = .872$, $p < 0.01$), science ($r = .856$, $p < 0.01$), and social studies ($r = .858$, $p < 0.01$). Academic emphasis accounted for 76.0% of the variation in math achievement (3 year NCE) ($r^2 = 0.760$), 73.3% of the variation in science achievement (3 year NCE) ($r^2 = 0.733$), and 73.6% of the variation in social studies achievement (3 year NCE) ($r^2 = 0.736$). These scores indicated a strong relationship between academic emphasis and student achievement (3 year NCE). The *r* values for each of these relationships are shown in Table 15.

Teacher Affiliation

The subscale scores of teacher affiliation and the student achievement gain scores were also examined for any possible relationships. No statistically significant relationships existed between teacher affiliation and student achievement gains in the surveyed schools. However, teacher affiliation and student achievement (3 year NCE) in each of the four core subject areas of reading, math, science, and social studies held substantial positive relationships. Reading achievement (3 year NCE) and teacher affiliation had a moderate correlation ($r = .501$, $p < 0.05$), which indicated that teacher affiliation accounted for 25.1% of the variation in reading achievement scores (3 year NCE) ($r^2 = 0.251$). The r value of .494 ($p < 0.05$) showed that 24.4% of the variation in math achievement (3 year NCE) could be explained by teacher affiliation ($r^2 = 0.244$). Science achievement (3 year NCE) had the strongest relationship with teacher affiliation, yielding an r of 0.538 ($p < 0.05$). The coefficient of determination indicated that 28.9% of the variation in science achievement scores (3 year NCE) could be explained by teacher affiliation ($r^2 = 0.289$). Social studies achievement (3 year NCE) also held a significant positive relationship with teacher affiliation ($r = 0.473$, $p < 0.05$). The coefficient of determination showed that 22.4% of the variation in social studies achievement (3 year NCE) could be explained by teacher affiliation ($r^2 = 0.224$). The correlation values for these areas are listed in Table 16.

Table 16

r Values for Teacher Affiliation Compared with Value-Added Student Achievement Gains and Student Achievement

	Reading	Math	Science	Social Studies	Core Subjects
2006 Gain (N=25)	.218	.132	-.037	.331	.191
Significance (2-tailed)	.296	.530	.860	.106	.361
3 year Gain (N = 23)	-.016	-.224	-.035	.073	-.074
Significance (2-tailed)	.943	.304	.874	.740	.736
3 Year NCE (N = 24)	.501*	.494*	.538**	.473*	NA
Significance (2-tailed)	.013	.014	.007	.020	NA

Note. ** Correlation is significant at the 0.01 level (2-tailed), * Correlation is significant at the 0.05 level (2-tailed).

Collegial Leadership

The subscale for collegial leadership and the value-added gain scores were examined to determine if any relationships existed. The *r* values for these areas are listed in Table 17. The subscale of collegial leadership and student achievement gains held no statistically significant relationships. Furthermore, student achievement (3 year NCE) in any subject area did not show any significant relationships with collegial leadership.

Resource Influence

Resource influence is the next subscale in which I looked for possible relationships with the students' achievement gains. The *r* values for these relationships are displayed in Table 18. Again, no statistically significant relationships could be found between the scores of the surveyed schools in the area of resource influence and student achievement gains.

Table 17

r Values for Collegial Leadership Compared with Value-Added Student Achievement Gains and Student Achievement

	Reading	Math	Science	Social Studies	Core Subjects
2006 Gain (N=25)	-.174	-.384	-.349	-.134	-.347
Significance (2-tailed)	.405	.058	.088	.523	.089
3 year Gain (N = 23)	-.293	-.373	-.215	-.240	-.321
Significance (2-tailed)	.175	.080	.325	.270	.136
3 Year NCE (N = 24)	.169	.196	.135	.102	NA
Significance (2-tailed)	.431	.358	.529	.635	NA

Table 18

r Values for Resource Influence Compared with Value-Added Student Achievement Gains and Student Achievement

	Reading	Math	Science	Social Studies	Core Subjects
2006 Gain (N=25)	-.127	-.158	-.160	.012	-.138
Significance (2-tailed)	.546	.451	.444	.954	.510
3 year Gain (N = 23)	-.160	-.328	-.118	-.118	-.217
Significance (2-tailed)	.467	.127	.592	.593	.319
3 Year NCE (N = 24)	.483*	.457*	.487*	.402	NA
Significance (2-tailed)	.017	.025	.016	.051	NA

Note. * Correlation is significant at the 0.05 level (2-tailed).

Resource influence was significantly related to student achievement (3year NCE) in reading ($r = 0.483$, $p < 0.05$), math ($r = 0.457$, $p < 0.05$), and science ($r = 0.487$, $p < 0.05$). The coefficient of determination indicated that resource influence was responsible for over 20% of the variation in achievement scores (3year NCE) in reading ($r^2 = 0.233$), math ($r^2 = 0.209$), and science ($r^2 = 0.237$). Table 18 displays the correlation coefficient scores for resource influence and student achievement (3year NCE).

Institutional Integrity

The final subscale to be examined for possible relationships with student achievement gains was institutional integrity. These relationships are shown in Table 19. Moderate relationships existed in the subscale of institutional integrity. Institutional integrity and the three year average gains of students in reading (r = .475, $p < 0.05$) and science ($r = .495$, $p < 0.05$) held moderate direct relationships. The coefficient of determination showed that institutional integrity could account for 22.6% of the variation in three year reading gains ($r^2 = 0.226$) and 24.5% of the variation in three year gains in science ($r^2 = 0.245$). The three year average of student achievement gains across the core subject areas and institutional integrity also held a moderate direct relationship ($r = .448$, $p < 0.05$). The coefficient of determination indicated that institutional integrity accounted for 20.1% of the variation in student gains across the core subject areas ($r^2 = 0.201$).

While institutional integrity appeared to have a direct relationship with student achievement gains, this area was inversely related to student achievement (3year NCE) in each of the tested subject areas. The strongest of these relationships was between math Table 19 achievement (3 year NCE) and institutional integrity ($r = -0.716$, $p < 0.01$). The

Table 19

r Values for Institutional Integrity Compared with Value-Added Student Achievement Gains and Student Achievement

	Reading	Math	Science	Social Studies	Core Subjects
2006 Gain (N=25)	.319	.317	.281	-.145	.239
Significance (2-tailed)	.120	.123	.174	.490	.250
3 year Gain (N = 23)	.475*	.399	.495*	.224	.448*
Significance (2-tailed)	.022	.060	.016	.305	.032
3 Year NCE (N = 24)	-.667**	-.716**	-.671**	-.668**	NA
Significance (2-tailed)	.000	.000	.000	.000	NA

Note. ** Correlation is significant at the 0.01 level (2-tailed), * Correlation is significant at the 0.05 level (2-tailed).

coefficient of determination revealed that this area of organizational health could explain 51.3% of the variation in math achievement scores (3 year NCE) ($r^2 = 0.513$). Significant inverse relationships also existed between institutional integrity and reading ($r = -0.667$, $p < 0.01$), science ($r = -0.671$, $p < 0.01$), and social studies ($r = -0.668$, $p < 0.01$). Coefficients of determination indicated that institutional integrity was responsible for at or close to 45% of the variation in the achievement (3 year NCE) of students in reading ($r^2 = 0.445$), science ($r^2 = 0.450$), and social studies ($r^2 = 0.446$). The Pearson correlations for institutional integrity and student achievement (3 year NCE) are shown in Table 19.

OHI-RE Index

The final quantitative analysis consisted of examining the OHI-RE Index scores and the value-added gain scores for possible relationships. These results are displayed in

Table 20. A significant inverse relationship existed between the OHI-RE index and the three year average gains for student achievement in math (r = -.438, $p < 0.05$). The coefficient of determination revealed that the overall OHI-RE index could account for 19.2% of the variance of student achievement gains in math ($r^2 = 0.192$).

Although three year average gains in math showed a significant inverse relationship with overall organizational health scores, student achievement (3 year NCE) in each subject area was directly related to overall organization health index scores. Reading achievement (3 year NCE) and overall OHI-RE scores held an r value of 0.586 ($p < 0.01$), indicating that overall organizational health could account for 34.3% of the variation in achievement in reading ($r^2 = 0.343$). Organizational health scores could also account for nearly one-third of the student achievement (3 year NCE) in math (r = .567, $p < 0.01$; $r^2 = 0.321$), and science (r = .577, $p < 0.01$; $r^2 = 0.333$). Social studies achievement (3 year NCE) and organizational health also share a significant direct relationship (r = .519, $p < 0.01$). The overall health score of a school could account for 26.9% of the student achievement (3 year NCE) in social studies ($r^2 = 0.269$). The Pearson r values for overall health and student achievement by subject area are displayed in Table 20.

Socioeconomic Status

Since the socioeconomic status of students served by a school has been shown to affect their performance on standardized tests (Coleman et al., 1966), I felt that it would be appropriate to discuss briefly the relationship between the percent of students who are considered economically disadvantaged and the organizational health of the schools in

Table 20

r Values OHI-RE Index Compared with Value-Added Student Achievement Gains and Student Achievement

	Reading	Math	Science	Social Studies	Core Subjects
2006 Gain (N=25)	.045	-.149	-.297	-.027	-.156
Significance (2-tailed)	.120	.123	.174	.490	.456
3 Year Gain (N = 23)	-.125	-.438*	-.179	-.158	-.276
Significance (2-tailed)	.569	.037	.415	.471	.203
3 Year NCE (N = 24)	.586**	.567**	.577**	.519**	NA
Significance (2-tailed)	.003	.004	.003	.009	NA

Note. ** Correlation is significant at the 0.01 level (2-tailed), * Correlation is significant at the 0.05 level (2-tailed).

this study. The percent of economically disadvantaged students was determined by the number of children at the school receiving free or reduced-price lunch. Many relationships, shown in Table 21, existed between the rate of students on free or reduced-price lunch and the areas of organizational health in the schools. Several areas of organizational health had significant negative relationships with the percent of economically disadvantaged students. The most striking relationship is that of academic emphasis and economically disadvantaged students (r = -0.852, $p < 0.01$), yielding a coefficient of determination of 0.726, thereby showing that the percent of economically disadvantaged students accounted for 72.6% of the variation in academic emphasis. A moderate positive correlation was seen between institutional integrity and the economically disadvantaged students (r = 0.534, $p < 0.01$) with a coefficient of determination of 0.285. Both teacher affiliation (r = -0.430, $p < 0.05$) and the OHI-RE

Table 21

Percent Economically Disadvantaged Students and OHI-RE

	Academic Emphasis	Teacher Affiliation	Collegial Leadership	Resource Influence	Institutional Integrity	OHI-RE Index
Percent Economically Disadvantaged Students	-0.852**	-0.430*	-0.052	-0.316	0.534**	-0.435*

Note. ** Correlation is significant at the 0.01 level (2-tailed), * Correlation is significant at the 0.05 level (2-tailed).

index scores ($r = -0.435$, $p < 0.05$) had moderate negative correlations with the percent of economically disadvantaged students. The coefficient of determination for these areas showed that the percent of economically disadvantaged students accounted for 18.5% of the variation in teacher affiliation ($r^2 = 0.185$) and 18.9% of the variation in the OHI-RE index score ($r^2 = 0.189$). With the exception of institutional integrity, it appears that higher rates of economically disadvantaged students point to lower organizational health scores.

The percentage of economically disadvantaged students also held some significant relationships with student achievement gains as well as student achievement (3 year NCE) scores. Table 22 lists the Pearson *r* values for the three year average value-added gain scores and student achievement scores as they related to the percent of economically disadvantaged students. Not surprisingly, there was a significant inverse relationship between student achievement (3 year NCE) in all subject areas and the percent of economically disadvantaged students in a school. The Pearson *r* for reading achievement (3 year NCE) was -0.902 ($p < 0.01$), for math achievement (3 year NCE) -0.897 ($p < 0.01$), for science achievement (3 year NCE) -0.925 ($p < 0.01$), and for social

Table 22

Pearson r Values for Percent Economically Disadvantaged Students and Student Achievement Gains and Student Achievement Scores

	Reading		Math		Science		Social Studies		Core Subjects
	Gain	NCE	Gain	NCE	Gain	NCE	Gain	NCE	Gain
Percent Economically Disadvantaged Students	.243	-.902**	.614**	-.897**	.271	-.925**	.215	-.938**	.428*

Note. ** Correlation is significant at the 0.01 level (2-tailed), * Correlation is significant at the 0.05 level (2-tailed).

studies achievement (3 year NCE) -0.938 ($p < 0.01$). In each subject area, the percent of economically disadvantaged students could account for greater than 80% of the variation in achievement scores (3 year NCE). The coefficient of determination (r^2) for reading was 0.814, math 0.805, science 0.856, and social studies 0.880.

Some significant direct relationships existed among student gain scores and the percent of economically disadvantaged students in the areas of math and the core subject average. The *r* value for the math relationship was 0.614 ($p < 0.01$), which indicated that the percent of economically disadvantaged students accounted for 37.7% of the variation in math gains ($r^2 = 0.377$). The average gains across the core subject areas also held a direct relationship with the percent of economically disadvantaged students with a Pearson *r* of 0.428 ($p < 0.05$) and a coefficient of determination of 0.183.

Summary of the Quantitative Data

Some significant relationships existed between organizational health and student achievement gains. Specifically, the null hypothesis can be rejected in the area of institutional integrity and the following subjects: reading (r = .475, $p < 0.05$), science (*r* =

.495, $p < 0.05$), and the core subject average ($r = .448$, $p < 0.05$). Academic emphasis also appeared related to student achievement gains in the areas of math ($r = -.552$, $p < 0.01$), science ($r = -.444$, $p < 0.05$, $r = -.438$, $p < 0.05$), and the core subject areas ($r = -.447$, $p < 0.05$). Furthermore, a relationship existed between the overall OHI-RE Index score of a school and math gains ($r = -.438$, $p < 0.05$).

Several significant relationships also existed between student achievement as measured by NCE scores and areas of organizational health. The strongest relationships were direct between student achievement (3 year NCE) in all subject areas and academic emphasis. Significant direct relationships were also found between student achievement (3 year NCE) and teacher affiliation, resource influence, and overall school health. Only the area of institutional integrity showed a significant inverse relationship with student achievement (3 year NCE).

The relationships between student achievement gains and organizational health appeared to be negative in the area of academic emphasis and overall health, whereas those areas, along with resource influence and teacher affiliation, were directly related to student achievement (3 year NCE). Furthermore, an inverse relationship appeared to exist between institutional integrity and student achievement gains, while the relationship was direct with student achievement (3 year NCE).

Findings also indicated that academic emphasis, teacher affiliation, and overall health were inversely related to the percent of economically disadvantaged students in the school. That is to say, schools serving less wealthy populations tended to have lower

scores in these areas. However, the relationship between institutional integrity and the percent of economically disadvantaged students was direct.

Qualitative Findings

To expand upon the quantitative findings from the 25 schools studied, a more in-depth examination of selected schools was performed. Four schools, selected for their organizational health and value-added achievement gains, were examined qualitatively. For demographic information about each of these schools, see Table 10. Table 11 holds information about each of the interview participants. The following sections detail data gathered from interviews and observations at these four sites. The context for each school is explained, followed by the qualitative findings. The findings are organized according to the subscales of the organizational health framework: academic emphasis, teacher affiliation, collegial leadership, resource influence, and institutional integrity.

Context

School 10 ($High_{OHI}High_{VA}$) is situated in a lower middle class neighborhood. The front doors of the school overlook the driveway/parking lot to face the cinder block patios of a row of condominiums. Several portable classrooms dot the north side of the building. The entrance greets visitors with a small fountain, which was donated by Home Depot, a local building supplies store. Posted on the walls are reminders of the school rules: respect yourself, respect others, respect our school. Samples of student writing and artwork are displayed in hallways outside of classrooms; however, the halls that do not contain classrooms are bare, with the exception of the "This is a silent zone" signs. At the beginning of the last school year, School 10 ($High_{OHI}High_{VA}$) was removed from the

government's list of failing schools. This event garnered much attention from the local media.

In stark contrast to the surroundings of School 10 ($High_{OHI}High_{VA}$), School 3 ($High_{OHI}Low_{VA}$) stands in an upper class neighborhood. The view from its front door consists of a grassy area, leading to a street lined with stately homes. The entrance contains portraits and biographical information on the school's namesake. Pictures of students, parents, and grandparents dot bulletin boards. Student acrostic penguin poems line a first grade hallway. Fourth grade classrooms are surrounded by "I'm Talking Nice" poems. Many other halls are lined with "Art Masters" creations, student-made pieces of artwork in various styles.

School 5 ($Low_{OHI}High_{VA}$) is built on a straight stretch of two-lane highway. It lies just on the agrarian side of the county's transition from suburban residence to rural expanse. Lumbering over the front door is an electric sign that reads, "Your child is tardy—report to the office." A mural of a park encompasses the entryway, interrupted by a "Let it snow" bulletin board. A large board touting "Safari Readers: 100 point club" hangs in one hallway. One student picture hangs on it. Throughout the school, "Wild about Reading" themed decorations brighten the halls. Most of these adornments hold cutouts of jungle animals and plants, but many do not have student names, pictures, or books. They look like exquisite frames, which contain no art.

School 15 ($Low_{OHI}Low_{VA}$) sits back from a four-lane highway that alternates between farmland and a variety of industry. A long stairway leads visitors up from the parking lot to the awning-covered front entrance. The entrance hall is covered with a

pastel forest scene. Framed student artwork greets visitors to the office. Student writing is posted throughout the building. Stop signs hang at the intersections of hallways. The fifth grade classrooms have an owl pellet display, just below a "No Bullying Zone" sign. Just around the corner in the first grade wing, Gallon Men, figures showing conversions from cups to gallons, hang on the wall.

Academic Emphasis

School 3 ($High_{OHI}Low_{VA}$) scored significantly higher in the area of academic emphasis than all of the other schools in this study at 596.86. School 5 ($Low_{OHI}High_{VA}$), School 10 ($High_{OHI}High_{VA}$), and School 15 ($Low_{OHI}Low_{VA}$) all scored below average in the area of academic emphasis. School 10 ($High_{OHI}High_{VA}$), with a score of 373.45 and School 15 ($Low_{OHI}Low_{VA}$), with a score of 374.86 were both over one standard deviation below the mean academic emphasis score. School 5 ($Low_{OHI}High_{VA}$), with a score of 284.03, was more than two standard deviations below the mean score.

The participants' statements regarding academic emphasis concern three general areas of this dimension. First, the responses concerning the teachers' and principals' expectations of the students are discussed. Next, the ways that the schools decide what to teach is related. Finally, statements made by the participants as to how the schools help struggling students are conveyed.

Despite the widely discrepant scores in academic emphasis, each of the schools iterated holding their students to high standards. However, the two high overall organizational health schools stated a clear emphasis on reaching the top. Teacher 2 at School 3 ($High_{OHI}Low_{VA}$) stated, "Our motto is excellence every day, and we expect that

out of the children, and they have come to expect it out of themselves." Teacher 1 at School 10 ($High_{OHI}High_{VA}$) said that she expects "nothing less than perfect" from her students.

In contrast, Teacher 1 at School 5 ($Low_{OHI}High_{VA}$) stated of the students "Well, they need to meet the state performance indicators that we have in our prioritized curriculum." The principal of School 15 ($Low_{OHI}Low_{VA}$) said, "I expect the children to come in and give their very best every day." While these statements show that the lower organizational health schools want their students to succeed, they did not share the verve of the expectations of the higher health schools.

The high expectations at School 10 ($High_{OHI}High_{VA}$) and School 3 ($High_{OHI}Low_{VA}$) were coupled with a continuous push for improvement. Neither the principal of School 10 ($High_{OHI}High_{VA}$) nor the principal of School 3 ($High_{OHI}Low_{VA}$) were satisfied with their current performance. The push for excellence never stops at School 10 ($High_{OHI}High_{VA}$). Teacher 1 commented,

> I mean we reached that so we just set higher goals…We'll set a goal one year and then meet it so then the next year she thinks we have to set it even…and it will just get bigger and bigger, I'm like geesh, pretty soon we'll be at close to perfect. It's like every time we reach something, she's making us push a little bit harder, which is great, but [laughs] never-ending.

Teacher 1 at School 10 ($High_{OHI}High_{VA}$) went on to elaborate on the differences she sees in her students, due in part to the high expectations to which the students are held,

> I mean their levels are so much higher every year that some of the things that I did with my last groups that I though was high, now this crew coming in, it's too easy. So I mean I think that's another thing since we're moving them up so much our work changes every year because they're getting smarter.

The principal at School 3 ($High_{OHI}Low_{VA}$) also looked to improve continuously. She stated, "I want to keep pushing the top."

Each of the schools reported following the curriculum provided by the county school system when deciding what to teach. However, School 10 ($High_{OHI}High_{VA}$) and School 3 ($High_{OHI}Low_{VA}$) have extended that curriculum. Teacher 2 at School 3 ($High_{OHI}Low_{VA}$) states, "We do lots of vocabulary. We do lots in addition to the basal; we do a great amount of novel study. We have science boxes that go above and beyond what the county provides." Likewise, the principal of School 10 ($High_{OHI}High_{VA}$) said,

> Scott Foresman is very weak like in vocabulary and fluency so we have to supplement those and bring in extra materials or extra programs just to make sure that we're hitting all of those skills that research says are important.

The principal of School 5 ($Low_{OHI}High_{VA}$) also focused on improvement, but in behavioral matters, relegating academics to a seemingly secondary concern. She stated,

> I have very high expectations for the students. Because, behaviorally especially, when I came here that was an issue, and so the students know what I expect of them behaviorally. Academically I challenge them.

Teacher 1 at School 5 ($Low_{OHI}High_{VA}$) stated evidence of the principal's expectations of the students, saying,

> She expects for them to know how to act and how to behave, and she backs that up by coming in and checking in on students that have had behavior problems in the past and like I said, she will meet with them. You know if there's a problem, she'll pull them out of our class and call parents. So she wants them to…behavior's the big issue, and academics.

Statements from the principal of School 15 ($Low_{OHI}Low_{VA}$) differed from those of the higher health and higher gain schools. When discussing the students' academics she stated, "It has got to be modified for our students because they are so low. It's hard for them to work out of the textbook." The principal's recognition of higher-achieving students also reflected these lower expectations. "What I would call the high average children are basically doing the basic curriculum because those children here basically are on grade level."

The teachers at School 15 ($Low_{OHI}Low_{VA}$), however, reported a divergent perception of the principal's expectations of the students. Teacher 1 stated,

> She definitely expects them to do their best always and to put forth all their effort and to really show what they're capable of doing, besides just being a bump on a log in your classroom. She has very high expectations for them.

Supporting her claim with evidence, Teacher 1 continued,

> You can just tell by the way that she interacts with the kids, not only discipline, you know, or just interacts with them in the hallway or in your classroom. When she comes to read to them or whatever, you can tell her level of expectations is very high for them and they respond obviously to that.

Each school reported several programs aimed at helping struggling students. All of the schools stated that they used a variety of computer-based and teacher-directed intervention programs. When asked about what the school does to support struggling students, both schools referred only to packaged programs such as *Read 180* or *Plato*. Teacher 2 at School 5 ($Low_{OHI}High_{VA}$) said,

> This year we have intervention for them. And I know I've been to an in-service on Plato, and I use that in my classroom with my whole group. And then *Voyager*, we're using that. And then we've got the intervention on the computer.

Teacher 2 at School 15 ($Low_{OHI}Low_{VA}$) stated,

> We offer I know in the fourth and fifth grade classes, we offer a program for, it's called *Language Exclamation, Language X*. And we offer that for students who are performing well below their grade level.

In addition to intervention programs, School 10 ($High_{OHI}High_{VA}$) and School 3 ($High_{OHI}Low_{VA}$) offer tutoring to students that occurs outside of school hours. At both of the schools, these programs are run by teachers who coordinate with the students' regular classroom teachers to revisit skills in which the students are deficient.

In the area of academic emphasis, data collected from the interviews supported the quantitative findings for School 3 ($High_{OHI}Low_{VA}$), School 5 ($Low_{OHI}High_{VA}$), and School 15 ($Low_{OHI}Low_{VA}$). Statements made by the teachers and principals of those schools with regard to their expectations of students, curriculum design, and assistance for struggling students were indicative of their respective scores. School 10 ($High_{OHI}High_{VA}$), however, with a below average score in this area, showed qualitative

evidence of strong academic emphasis, iterating expectations, curriculum, and assistance more similar to the higher scoring School 3 ($High_{OHI}Low_{VA}$). Provided in Table 23 is a summary of the statements made by each school that correspond to the area of academic emphasis.

Teacher Affiliation

All four of the schools that were qualitatively examined scored above average (over 500) in the area of teacher affiliation. School 10 ($High_{OHI}High_{VA}$) scored 656.70, School 3 ($High_{OHI}Low_{VA}$) scored 775.17, School 5 ($Low_{OHI}High_{VA}$) scored 560.25, and School 15 ($Low_{OHI}Low_{VA}$) scored 575.35. Not surprisingly, similar statements verifying strong teacher affiliation were made by staff members of the schools.

Table 23

Academic Emphasis Themes

	School 10 ($High_{OHI}High_{VA}$)	School 3 ($High_{OHI}Low_{VA}$)	School 5 ($Low_{OHI}High_{VA}$)	School 15 ($Low_{OHI}Low_{VA}$)
Expectations	• Academic and behavioral growth • Reach the top • Never satisfied with current performance	• Excellence every day • Never satisfied with current performance	• Behavioral growth • Meet state standards	• Give their best • Good behavior
Curriculum	• Extend the state curriculum	• Extend the state curriculum	• Teach the state curriculum	• Teach the state curriculum • Teach to their level
Help for struggling students	• Packaged programs • After school tutoring	• Packaged programs • After school tutoring	• Packaged programs	• Packaged programs

Each of the participants' responses concerning the area of teacher affiliation are organized into three themes. The staff relationships with each other are discussed first. Second, the staff's perception of the students is relayed. Finally, the staff's perception of the school as a whole is conveyed.

A clear theme for the teachers in each of the schools was that they felt a sense of family. Teacher 2 at School 15 ($Low_{OHI}Low_{VA}$) stated, "It's a very close-knit family atmosphere." Teacher 2 at School 5 ($Low_{OHI}High_{VA}$) said of the school, "There's a lot of friendships that have been built here. And I think we're sort of more of a family type staff than one that is not." The principal of School 10 ($High_{OHI}High_{VA}$) stated, "I mean I hate to say it's a family and being clichéd about things, but it is truly a family. I think just the support we have for each other is phenomenal." Teacher 2 at School 3 ($High_{OHI}Low_{VA}$) said of the staff, "We are truly family." The idea of the staff being a family could be found in statements from each of the research participants.

The principals and teachers of School 10 ($High_{OHI}High_{VA}$) and School 3 ($High_{OHI}Low_{VA}$) reported a sense of dedication to the students and teachers of their schools. Teacher 2 at School 3 ($High_{OHI}Low_{VA}$) elaborated on the work ethic of several teachers in the building, "And it's amazing, you'll find teachers here at 6, 7, 8 o'clock at night. Not because she asks us to, but because we want to be ready for those children the next day and to be our best." Teacher 1 at School 10 ($High_{OHI}High_{VA}$) referred to time that teachers spend outside of work hours to show their support for the students,

> Like just last Saturday another friend and I that teaches here went to one of the basketball games where the kids were at. I don't know too many school systems

where they do that. You know maybe if their kid was there, but we set the schedule. We were like 12:40 we're going to go to their game. And I mean half our school is in that. It's a church league. I think we go out of our way to help the kids and it shows.

Teacher 1 at School 10 ($High_{OHI}High_{VA}$) continued, "Obviously like I said before, you could teach somewhere else, and it could be your career, not your life. I feel like we're always thinking about these kids."

The teachers and principals of School 10 ($High_{OHI}High_{VA}$) and School 15 ($Low_{OHI}Low_{VA}$) both find intrinsic rewards in serving the populations of their schools. Teacher 1 at School 15 ($Low_{OHI}Low_{VA}$) stated, "And the teachers really enjoy the kids. I think it's a little bit of extra work sometimes, but the reward is just so great here. The kids really appreciate everything you do for them." The principal of School 10 ($High_{OHI}High_{VA}$) spoke of the rewards that she gets from working with her students,

I mean they're appreciative of anything you do for them. Whether it's bringing a dentist in, they get their teeth fixed, or we're bringing doctors in, having after-school dance classes, or art classes. They just come up to you and love you. They're just so sweet.

Furthermore, School 10 ($High_{OHI}High_{VA}$) and School 3 ($High_{OHI}Low_{VA}$) indicated a sense a pride in their respective schools. They saw themselves as atypical, special, or unique. Teacher 1 at School 3 ($High_{OHI}Low_{VA}$) stated, "In my opinion, [School 3 ($High_{OHI}Low_{VA}$)] is the type of public school every public school should be…" Teacher 1 School 3 ($High_{OHI}Low_{VA}$) went on to indirectly compare School 3 ($High_{OHI}Low_{VA}$) with

other schools saying, “Sometimes we have students that transfer in here. We have a very strong academic program, and if you’re not a solid student, you probably will be a struggler.”

While the statements of School 15 ($Low_{OHI}Low_{VA}$) were positive in regards to teacher affiliation, they were not as strong as those heard from School 3 ($High_{OHI}Low_{VA}$) and School 10 ($High_{OHI}High_{VA}$). This could have been due their recovery from a negative past situation. Teacher 2 stated, “We have had some problems you might say in the past.” She went on, “I have seen others not be as close. Not work together as well as maybe I think they should be working together.” Teacher 1 also mentioned some negative past situations, stating, “It was a little, there were some other issues I think going on in the school before I got here that kind of had trickled over to that year.” They went on to show, however, the improvement of the situation, stating, “It’s really great [laughs]. I really like it. The atmosphere is wonderful.” (Teacher 1), and “It’s very enjoyable. I have no intentions of leaving” (Teacher 2).

School 5 ($Low_{OHI}High_{VA}$) also made statements that indicated strong teacher affiliation, but not to the level of School 3 ($High_{OHI}Low_{VA}$) and School 10 ($High_{OHI}High_{VA}$). Teacher 1 stated,

> I think I like it. I obviously have liked it because I’ve kept coming out here and actually live out in the south end of town, so I have a pretty good drive. But I like the community. It’s a close knit community, and the parents and students and teachers and principals that both principals that I’ve had have been very supportive. It’s a good place to work.

Concurring with the sentiments of Teacher 1, Teacher 2 at School 5 ($Low_{OHI}High_{VA}$) said, "I guess it's wonderful, because I don't know any different. I don't want to go anyplace else." Therefore, while each of the schools showed signs of healthy teacher affiliation, School 3 ($High_{OHI}Low_{VA}$) and School 10 ($High_{OHI}High_{VA}$) made statements that indicated deeper affiliation among the teachers.

Each of the schools in the qualitative portion of the study scored above the mean in the area of teacher affiliation. Interview data support these scores. Furthermore, stronger affiliative statements made by participants at School 3 ($High_{OHI}Low_{VA}$) and School 10 ($High_{OHI}High_{VA}$) with regard to the perception of their school substantiate the higher scores that those schools received in this area. A summary of the schools' responses in the area of teacher affiliation is shown in Table 24.

Collegial Leadership

In the area of collegial leadership, all of the schools in the study scored above the mean. School 3 ($High_{OHI}Low_{VA}$) was the highest, with a 99th percentile score of 874.02.

Table 24

Teacher Affiliation Themes

	School 10 ($High_{OHI}High_{VA}$)	School 3 ($High_{OHI}Low_{VA}$)	School 5 ($Low_{OHI}High_{VA}$)	School 15 ($Low_{OHI}Low_{VA}$)
Staff relationships	• Family	• Family	• Family	• Family
Staff perception of students	• Kids need you here	• Top students	• Diverse student body	• Kids need you here
Staff perception of school	• Proud of accomplish-ments • Rough past	• Proud of accomplish-ments	• Rough past	• Rough past

Each of the other schools in the qualitative portion of the study scored over two standard deviations above the mean in the area of collegial leadership. School 15 ($Low_{OHI}Low_{VA}$) scored 774.68, School 5 ($Low_{OHI}High_{VA}$) scored 781.67, and School 10 ($High_{OHI}High_{VA}$) scored 745.02.

Statements made by participants from each of the schools were indicative of the above-average scores in the area of collegial leadership. The schools' responses are discussed in terms of their perceptions of the goal-setting process, teamwork, and the principal's willingness to implement teachers' ideas.

With the lowest score of the four schools in collegial leadership, School 10 ($High_{OHI}High_{VA}$) sets apart from the others in the area of collegial leadership in the school-wide understanding of the goal setting process. This process at School 10 ($High_{OHI}High_{VA}$) is almost exclusively data driven. According to the principal of School 10 ($High_{OHI}High_{VA}$), "Well we start off with TCAP of course. No Child Let Behind pretty much rules us. Especially since we were on the list two years ago. We came off last year, but with math and reading, we have to go with those goals." While the main goals of the school are dictated by governmental requirements, the staff and students of the school know their part in the process and make meaningful and frequent contributions to it. Teacher 2 of School 10 ($High_{OHI}High_{VA}$) explained part of the goal-setting process at the school,

> And then the grade levels set their own goals within their grade levels of what they wanted their reading goals to be and what they wanted their math goals to be

for their kids as well as our behavior goals and the attendance goals. We set all those collaboratively as well.

The principal conveys the school-wide necessities to the faculty; they in turn set individual grade level goals to which they are held accountable.

> Like I said, the grade levels make up their own goals. So they want to pursue a certain percentage of students reading at the level M by this time of year. So the grade levels continually update their goals. So it's not just the school goals, but the individual goals and they set them themselves. [Principal of School 10 ($High_{OHI}High_{VA}$)]

Once these goals are determined by the grade levels, the teachers regularly assess their progress and make adjustments when necessary.

> And the teachers are, all of the staff members are expected to go back and analyze their scores on every assessment they have. So we have assessment, we analyze, what's that called, the assessment meetings. But after every assessment then a grade level sits down, they analyze how many students were proficient, how many students weren't and they go back and look at not only our school goals, but they look at the individual goals they've set for their grade level. [Principal of School 10 ($High_{OHI}High_{VA}$)]

The principal of School 10 ($High_{OHI}High_{VA}$) went on to state,

> I just want to make sure that everybody knows what we're after and sees that we're making the progress. If not, then we need to back up and look at our

instruction. The teachers are awesome with that. The whole staff's just analyzing where are we going, what do we need to do.

Teacher 1 of School 10 ($High_{OHI}High_{VA}$) reported that this process not only keeps teachers involved, but also the students. "I think we know where we want the kids to be and better yet, they know where they want to be."

School 3 ($High_{OHI}Low_{VA}$) and School 5 ($Low_{OHI}High_{VA}$) also reported using a team approach to setting goals for the school, though neither was as thorough as School 10 ($High_{OHI}High_{VA}$). The principal of School 5 ($Low_{OHI}High_{VA}$) described the goal setting process in the building,

> Well, we have the leadership team again that we rely heavily on. That was very important to me this year. Just not knowing anything about the school and just so we meet as a group. We analyze the TCAP data. We take it apart, look at it. We do the value-added, tear it apart.

Teacher 1 at School 3 ($High_{OHI}Low_{VA}$) also said that the school sets goals as a team, "We came up with our goals, and that was a joint effort, and we talked about it, and we voted on it."

Like School 10 ($High_{OHI}High_{VA}$) and School 5 ($Low_{OHI}High_{VA}$), the principal of School 3 ($High_{OHI}Low_{VA}$) ensures that the goals of the school are tied to data on student performance.

> Mainly we look at data. Because student learning is data driven. And if you see an area where you have a strength, that is great. You want to continue to build on your strength. But if you've got an area that you need to work on, like our high

> performing fourth graders in math, then we need to do something about it, and that's what we're trying to do.

The goal setting process at School 15 ($Low_{OHI}Low_{VA}$) differs somewhat from that of School 10 ($High_{OHI}High_{VA}$). The principal of School 15 ($Low_{OHI}Low_{VA}$) stated, "I told them that my priority was to give every child in this school the education that they needed. Teacher 1 at School 15 said,

> We created a school improvement plan last year. Based on [principal]'s, she had four or five objectives, that she created for our school. We took those objectives and we created our own school goals. And then wrote our school improvement plan based on that.

She continued, "Don't ask me to name them right now [laughs]." Teacher 2 at School 15 stated that the goals of the school were developed, "Through leadership teams built through the teachers. They make the goals of the school as a whole."

Each participant that was interviewed at School 15 ($Low_{OHI}Low_{VA}$) described a different process for determining the goals of the school. This discrepancy is not indicative of the high collegial leadership score that School 15 ($Low_{OHI}Low_{VA}$) received.

Both of the principals of School 3 ($High_{OHI}Low_{VA}$) and School 10 ($High_{OHI}High_{VA}$) make hiring at their schools a team decision. The principal of School 10 ($High_{OHI}High_{VA}$) referred to her methods of hiring new teachers, "I said that's a group decision, whoever comes in this building. That's a team decision, I don't make those decisions."

The principal of School 3 ($High_{OHI}Low_{VA}$) also sees the importance of team building, saying,

> When I interview people for a job, one of the things that I ask them is, how do you get along with your teammates where either you're doing your student teaching or how do you get along with the teammates where you've been? What have you contributed to the team? What do you do for team building? And I think camaraderie and supporting each other and learning from each other is very important

The principal of School 15 ($Low_{OHI}Low_{VA}$) also seemed to recognize the importance of team building in the school. Teacher 2 gave evidence of this, remarking,

> But I feel that a change of leadership and really offering us more opportunities to work together and become a family so to speak, a change in leadership has really helped us in that way. Bring us close together. Provide us with more of a team atmosphere.

Neither the principal nor the teachers of School 5 ($Low_{OHI}High_{VA}$) mentioned teamwork in their buildings.

The principals of School 3 ($High_{OHI}Low_{VA}$), School 15 ($Low_{OHI}Low_{VA}$), and School 10 ($High_{OHI}High_{VA}$) also made mention of allowing their teachers to pursue their own ideas, even when those pursuits may reach outside of the principal's comfort zone. The principal of School 10 ($High_{OHI}High_{VA}$) described an instance in which she permitted some teachers to implement a strategy that made her uneasy,

> I was very skittish at first. I was worried about transition time, even though they're right there together. I was still worried about how long is it going to take us to get our pencils and everything together, get seated, get on task. And we talked about it I guess yesterday, and looked at the growth and progress monitoring. We progress monitor every two weeks and they have made amazing gains. And I told them, I'm skittish about this, however, if you all feel this strongly about it, then I will support you whole-heartedly. And it's been a success.

The principals at School 15 ($Low_{OHI}Low_{VA}$) and School 3 ($High_{OHI}Low_{VA}$) described situations in which they too allowed teachers to go ahead with a plan that was made in such a way as they might make it.

While the principal of School 5 ($Low_{OHI}High_{VA}$) did not describe such a situation, she did tell about a time when some of her teachers solved a school problem that was perplexing her. The traffic flow at her school was causing problems during drop off and dismissal. She was under pressure from school board members, central office staff, and county commissioners to fix the traffic dilemma. She related her appreciation when two teachers devised a plan,

> I had two teachers that came to me and just devised this wonderful plan. They took it on and recruited the people to do it, made it work, and it had a lot of kinks in it at the beginning, but now it's just, I don't even have to oversee it at all, it's just, it's just perfect.

Each of the schools in the qualitative portion of the study relayed evidence that corresponds to their above average collegial leadership scores. While School 3

($High_{OHI}Low_{VA}$) scored significantly higher than the other schools, qualitative data gathered does not support such a discrepancy. Nonetheless, the schools did provide statements that substantiate above average collegial leadership. A summary of the qualitative findings in the area of collegial leadership is shown in Table 25.

Resource Influence

The scores for the area of resource influence varied at each of the schools. Again, School 3 ($High_{OHI}Low_{VA}$) scored the highest with 768.55. School 10 ($High_{OHI}High_{VA}$) and School 15 ($Low_{OHI}Low_{VA}$) were also above the mean with scores of 580.81 and 529.67 respectively. School 5 ($Low_{OHI}High_{VA}$) was the only school in the qualitative portion of the study that scored below the mean with a score of 457.63.

Qualitative data collected in this study support the scores for each school in the area of resource influence. Specifically, statements made by the participants regarding the allocation of resources, perception of the principal's efficaciousness, and the connections that the principal has with her superiors bear out the relationships among the schools in this area.

Table 25

Collegial Leadership Themes

	School 10 ($High_{OHI}High_{VA}$)	School 3 ($High_{OHI}Low_{VA}$)	School 5 ($Low_{OHI}High_{VA}$)	School 15 ($Low_{OHI}Low_{VA}$)
Goal setting	• Collaborative • Continuous • Data-based	• Collaborative • Data-based	• Collaborative	• Collaborative
Teamwork	• Hiring is a team decision	• Hiring is a team decision	• No evidence	• More is occurring
Use of teacher ideas	• Yes, despite reservations	• Yes, despite reservations	• Yes	• Yes, despite reservations

At each of the schools, the principal was ultimately responsible for distributing the resources of the building. Each principal had a different systematic approach to making allocations, but they all gave priority to requests that would directly impact student learning. The principal of School 15 ($Low_{OHI}Low_{VA}$) stated, "Any additional requests come to me and if at all possible I find a way to fill those requests if it's to be used for students." Possibly explaining the lower score of School 5 ($Low_{OHI}High_{VA}$), the teachers had few experiences with the influential power of their principal. Responding to a question about the principal's ability to obtain resources for the school, Teacher 2 stated, "Of course this is her first year, so I don't know."

In addition to the ability to acquire and distribute resources in a school, the principal of a healthy school must be viewed by her staff as influential. The principals of both School 5 ($Low_{OHI}High_{VA}$) and School 15 ($Low_{OHI}Low_{VA}$) were successfully influential in improving the cosmetic appearance of their facilities. Teacher 1 of School 5 ($Low_{OHI}High_{VA}$) reported, "Well, this principal that's just been here this year has already, she's got the painters to come out. She got them talked into letting us get this painted and we've needed it for a long time."

The principals of School 10 ($High_{OHI}High_{VA}$) and School 3 ($High_{OHI}Low_{VA}$) were seen as assertive advocates for their school. Teacher 2 at School 3 ($High_{OHI}Low_{VA}$) said of her principal, "She just goes to bat for us for whatever we need. Just so many times, so many times that she's done this." Teacher 1 of School 3 ($High_{OHI}Low_{VA}$) recalled a specific instance, during which the school benefited from the principal's influence, "I know that we have some special needs children at our school at a certain grade level. And

they, at one time were not sending one-on-one aide for these children. And she worked her magic, did her influence." Furthermore, the principal of the School 3 ($High_{OHI}Low_{VA}$) portrayed herself as a leader who gets things done.

> And I'm not afraid to ask and I'm not afraid to hear no. But I don't take no very well for an answer. And I think anybody that you would talk to about me would tell you that. Ask [me] to get it done, and it will be done. That's just kind of always been my reputation.

The principal of School 10 ($High_{OHI}High_{VA}$) is also willing to fight for what she and the teachers feel is best for their students.

> We did not want to do kindergarten intervention the way [Metro] County was doing it, so I fought tooth and nail for a year. We're not doing it, you take me out of this school if you want to, but my teachers and I will walk if you do not let us, and this is why.

The teachers at School 10 ($High_{OHI}High_{VA}$) reflected on their principal's intractable spirit. Teacher 1 stated, "I feel like she fights for us and the school harder than any principal that I've worked for." Teacher 2 showed her feelings about the principal's effectiveness in the statement, "I just know that when we need something, she gets it. I don't know how she gets it, it just gets here."

Another quality setting the principals of School 10 ($High_{OHI}High_{VA}$) and School 3 ($High_{OHI}Low_{VA}$) apart was their previous experience. While their years in the education field vary significantly, the positions that they held in those years have netted each of these administrators with connections to the system-wide administration. The principal of

School 10 ($High_{OHI}High_{VA}$) stated, "And I think the relationships were developed before I got in this position, which was good. You know through curriculum, and then as an assistant principal, I think that really helped too." The principal of School 3 ($High_{OHI}Low_{VA}$) said,

> I was president of the [Metro] County Elementary Principal's Association and by being there, I was able to meet and plan programs for all the elementary principals. I've also been on the principal advisory council, so I've been able to work with other principals at schools, work with supervisors. When I was traveling reading teacher, I chaired the reading committee, when we adopted reading, and I have through professional organizations and just through the job, I have had an opportunity to work with every in the central office, and when I call them, they return the call and help me out.

The principal of School 15 ($Low_{OHI}Low_{VA}$) also had previous experience in the central office of the school system, but she made no mention of any connection that time gained for her.

Statements collected from the interviews support the quantitative findings of the OHI-RE. School 3 ($High_{OHI}Low_{VA}$) and School 10 ($High_{OHI}High_{VA}$) both saw their principals as more efficacious, and those principals reported strong connections with their superiors. A summary of the statements made by the participants regarding the area of resource influence is shown in Table 26.

Table 26

Resource Influence Themes

	School 10 ($High_{OHI}High_{VA}$)	School 3 ($High_{OHI}Low_{VA}$)	School 5 ($Low_{OHI}High_{VA}$)	School 15 ($Low_{OHI}Low_{VA}$)
Allocation priorities	• Student learning	• Student learning	• Student learning	• Student learning
Perception of efficaciousness	• Fights for school	• Gets it done	• Hallways painted	• Hallways painted
Connections with superiors	• Gained from previous experience	• Gained from previous experience		

Institutional Integrity

School 10 ($High_{OHI}High_{VA}$) obtained the highest score in the area of institutional integrity, reaching 608.11. Very close, and also over one standard deviation above the mean, was School 5 ($Low_{OHI}High_{VA}$) with a score of 606.08. School 15 ($Low_{OHI}Low_{VA}$) was above average in this area with a score of 587.52. Conversely, School 3 ($High_{OHI}Low_{VA}$) had the lowest score in institutional integrity of any school in this study, with a score of 455.96.

Responses to questions concerning institutional integrity are categorized into those dealing with parent participation and those regarding community involvement. The qualitative responses corroborate with the quantitative scores from the OHI-RE. However, School 3 ($High_{OHI}Low_{VA}$), with the lowest institutional integrity score stated the involvement that they experience from parents and community members as positive. Indeed, according to the interview data, School 3 ($High_{OHI}Low_{VA}$), scoring the lowest in institutional integrity appeared to have the most beneficial relationships with actors outside of their school. Conversely, School 10 ($High_{OHI}High_{VA}$), School 5

($Low_{OHI}High_{VA}$), and School 15 ($Low_{OHI}Low_{VA}$) displayed a more strained relationship with the community and parents.

Each of the four schools that participated in the qualitative portion of this study exists in a different social environment. Each faces its own challenges that stem from factors outside of their control. For example, both of the high value-added schools serve populations that have difficulty finding transportation to school events, a situation that could lead to several parents feeling disconnected from the school. School 5 ($Low_{OHI}High_{VA}$) and School 10 ($High_{OHI}High_{VA}$) have attempted to remedy this situation by taking some of their events to the parents, instead of asking the parents to come to the school. The principal of School 5 ($Low_{OHI}High_{VA}$) stated,

> We're having, our PTA meeting this month we're having at [community center], the preschool. They're letting us use their building because that's in the heart of that community. So we're going to try to take us to them to try to get them to feel more comfortable with the school and offer some more activities. Kindergarten round up we're going to do two different times and do one there too, just to try to get them involved and get them to feel more a part of our community.

School 15 ($Low_{OHI}Low_{VA}$) has taken a different approach to bringing more parent involvement to their school. The principal stated,

> We're really working on that. We do a lot of things now in the afternoons and the evenings to pull parents in. So that's one of our goals now, is to really get more parent involvement because it's something we're lacking at this school.

She followed with an example of such an activity,

> When we have our fall festivals there's like, it's jam-packed, you can hardly walk through here so everyone's really excited when we have things going on. I think that's very different from other schools where maybe they're just there for their education then they leave and do other things in the community. This is really the center of our community.

The principal of School 15 ($Low_{OHI}Low_{VA}$) gave another example of the school bringing in events that would otherwise not occur in the community, saying, "[Name withheld] is coming from UT and bringing four or five people with big telescopes to do star gazing things that this community is not used to seeing."

School 15 ($Low_{OHI}Low_{VA}$) also appeared to strive to utilize the resources of the community to help the students, while maintaining an understanding of the financial limitations of the community. The principal recalled,

> And these are people that there's not a lot of money, but a father that owned a backhoe would come in and start clearing out the nature trail. Giving things that really really meant a lot because I knew how much they had to give.

The principal of School 10 ($High_{OHI}High_{VA}$) pursues community support from outside of the school's surrounding area, which is somewhat of a necessity for School 10 ($High_{OHI}High_{VA}$), due to its location in a lower-income neighborhood. When talking about community support, the principal of School 10 ($High_{OHI}High_{VA}$) stated, "In this area, it's a little weak, but the greater [Metro City] has been wonderful."

School 5 ($Low_{OHI}High_{VA}$) rests in a more rural setting, and the school relies mostly on parent business connections in the area. The principal gave some examples,

> Our parents help out a lot too. Because the parents are, a lot of our parents own businesses within the community. So we have a dad that owns two printing shops. And so to help us out with extra additional things, he's always printing up things for us for little or no costs. We have a dad who owns a landscaping business. He tries to keep our landscaping looking better than what the [Metro] County norm would be

School 3 ($High_{OHI}Low_{VA}$), however, enjoys more affluent surroundings, with several successful businesses and wealthy families. The principal extolled the mutual benefit that can exist between schools and businesses, stating,

> We have 14 partners in Education. And any time a new business comes into this vicinity, I go after them, and try to get them. And I think that's a win-win situation for everybody. And at this point, nobody's told me no yet, so that's good.

The scores for each of the schools in the area of institutional integrity are not supported by statements made by the participants. With the lowest score of all of the schools involved in the study, School 3 ($High_{OHI}Low_{VA}$) reported the most benefit from external involvement with their school. School 10 ($High_{OHI}High_{VA}$), School 5 ($Low_{OHI}High_{VA}$), and School 15 ($Low_{OHI}Low_{VA}$) all stated that they were attempting to gain more involvement from parents and community members. This discrepancy could be due to flaws in the construction or administration of the interview questions concerning institutional integrity. A summary of the participants'' statements concerning institutional integrity is provided in Table 27.

Table 27

Institutional Integrity Themes

	School 10 ($High_{OHI}High_{VA}$)	School 3 ($High_{OHI}Low_{VA}$)	School 5 ($Low_{OHI}High_{VA}$)	School 15 ($Low_{OHI}Low_{VA}$)
Parent participation	• Go to the parents	• Strong participation	• Go to the parents	• Bring the parents in
Community support	• Look outside school zone	• Plenty within zone	• Utilize what the area can offer	• Utilize what the area can offer

Summary of the Qualitative Data

The interviews and observations confirmed findings from the quantitative portion of the study in the areas of academic emphasis, teacher affiliation, collegial leadership, and resource influence, with two notable exceptions. First, the statements concerning academic emphasis made by the participants at School 10 ($High_{OHI}High_{VA}$) were not consistent with the relatively low score of that school in this area of organizational health. Second, the participants at School 3 ($High_{OHI}Low_{VA}$) did not make statements that were commiserate with the high score that the school received in the area of collegial leadership. Overall, though, the qualitative data confirmed the findings of the survey in these four areas.

The area of institutional integrity, however, appeared to have an inverse relationship with the statements made by the participants. School 3 ($High_{OHI}Low_{VA}$), with the lowest institutional integrity score in the study, reported what appeared to be a healthy relationship with their external environment. The schools with higher scores in this area, in contrast, made statements to indicate that this relationship was in the process of coming into fruition.

Summary

Some significant relationships between areas of organizational health and student achievement gains were found to exist. However, the relationships in the areas of academic emphasis and overall organizational health were negative, indicating that schools with higher health scores in these areas tended to achieve fewer gains with their students. Furthermore, the area of institutional integrity held a positive relationship with student achievement gains. Conversely, academic emphasis, teacher affiliation, resource influence, and overall health were directly related to student achievement while institutional integrity was inversely related to achievement. While the relationships between student achievement and organizational health were stronger than health's relationships with student achievement gains, socio-economic factors were also strongly related to student achievement. The qualitative data expanded upon these relationships as well as confirmed the schools' scores in the areas of academic emphasis, teacher affiliation, collegial leadership, and resource influence. The qualitative findings were not consistent with the quantitative findings in the area of institutional integrity.

CHAPTER V

CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

Introduction

This study examined the relationships among organizational health, the factors of organizational health, and student achievement gains. Schools have the task of improving their students' academic achievement regardless of the background from which the students whom they serve come. Previous research has revealed areas that the school can control that can affect the achievement of their students (Armstrong, 1999; Bossert, 1988; Brookover et al., 1978; Good & Weinstein, 1986; Hoy & Ferguson, 1985; Huang et al., 1995; Jansen, 1995; Mayer et al., 2001; Munoz & Dossett, 2001; Nyhan & Alkadry, 1999; Sweetland & Hoy, 2000; Wilson et al., 2002). Organizational health has been identified as one such area. This study examined the question of what relationship exists between organizational health and student achievement gains.

Research Question 1

Years of research has confirmed the relationship between school climate and student achievement, indicating that a good school climate leads to better student achievement (Armstrong, 1999; Bossert, 1988; Brookover et al., 1978; Good & Weinstein, 1986; Hoy & Ferguson, 1985; Huang et al., 1995; Jansen, 1995; Mayer et al., 2001; Munoz & Dossett, 2001; Nyhan & Alkadry, 1999; Sweetland & Hoy, 2000; Wilson et al., 2002). This study sought to investigate the question of whether the positive effects of a good school climate would also be indicative of higher student achievement gains. The first research question of this study was quantitative in nature, investigating whether

the relationship among organizational health factors (Academic Emphasis, Teacher Affiliation, Collegial Leadership, Resource Influence, and Institutional Integrity) and student achievement gains in the elementary schools of a southeastern metropolitan school system existed. Data gathered from 25 elementary schools in the form of organizational health scores and value-added achievement gain scores served to answer this question.

A significant inverse relationship between student achievement gains and academic emphasis emerged. There was also a significant inverse relationship between student achievement gains and overall organizational health. Furthermore, a direct significant relationship was found between student achievement gains and institutional integrity. No significant relationships were found between student achievement gains and teacher affiliation, collegial leadership, or resource influence. Further inquiry revealed significant direct relationships between student achievement and academic emphasis, teacher affiliation, resource influence, and overall health. A significant inverse relationship was found between student achievement and institutional integrity.

Discussion of the Findings for Research Question 1

In examining the relationship of organizational health scores and student achievement gains, some interesting results were found. First, slight negative correlations existed between student achievement gains and academic emphasis as well as overall organizational health, indicating an inverse relationship. When I examined the relationship between these areas and student achievement scores, the relationships were positive and stronger. Prior quantitative research concerning organizational health,

academic emphasis, and student achievement had found positive, significant relationships (Browne, 2002; Goddard et al., 2000; Hoy & Hannum, 1997; Hoy, Hannum, & Tschannen-Moran, 1998; Hoy et al., 1990; Podgurski, 1990; Smith, 2002; Sweetland & Hoy, 2000; Valente, 1999). Findings from this study confirm a positive relationship between organizational health, academic emphasis, and student achievement scores.

However, this positive relationship does not appear to apply to student achievement gains. The results of this study, in fact, indicate an inverse relationship between student achievement gains, overall organizational health and the area of academic emphasis. Several factors could contribute to this relationship. First, schools with higher achievement are typically those that serve higher socioeconomic populations (Coleman et al., 1966; Jencks et al., 1972). While the relationships between student achievement and organizational health were stronger than those between organizational health and student achievement gains, socioeconomic background had a much stronger impact on student achievement than it did on student achievement gains or organizational health.

Teachers at wealthier schools might enjoy a better climate because they do not have the challenges facing educators working in more economically disadvantaged environments. Findings from this study indeed indicate that lower socioeconomic schools tend to have lower organizational health scores. Moreover, teachers serving a higher achieving population may struggle to make the same gains as do schools in which the students are starting at a lower level. TVAAS scores measure the progression of a student in relation to the population of the state. A teacher could more readily be expected to

move student from the 20th percentile to the 30th percentile than from the 85th percentile to the 95th percentile. While both progressions are significant, the latter is certainly less likely to occur due to the nature of the population. Therefore, schools serving more disadvantaged students could expect to see higher achievement gains than those serving higher achieving students. Findings from this study do indicate a moderate direct relationship between the number of economically disadvantaged students and the amount of gains that they make. Further analysis is warranted to determine what amount of correlation is present between student achievement gains and organizational health independent of the socioeconomic status of the population that the school serves.

Previous research had found a inverse relationship between student achievement and the area of institutional integrity (Hoy & Hannum, 1997). This study found data consistent with these findings. However, holding with the findings in the area of academic emphasis, student achievement gains have the opposite relationship with institutional integrity. A moderate direct relationship existed between institutional integrity and student achievement gains. This, again, could be explained by the relationship between organizational health and socioeconomic status. Schools serving wealthier populations typically have more parental involvement, which leads to lower institutional integrity. In fact, School 3 ($High_{OHI}Low_{VA}$) had the lowest overall poverty rate, coupled with the lowest overall institutional integrity score. While that school had very high achievement scores, the gain scores are among the lowest in this study.

The 25 schools in this study did show some moderate correlations between socioeconomic status and student achievement gains. However, these relationships do not

exist when examining the gain scores of all of the schools in the state in relation to their socioeconomic status. While socioeconomic status stands as one reasonable explanation of the discrepancy between the relationships of organizational health and student achievement and student achievement gains, yet another possible explanation is the TVAAS system. As mentioned previously (see Chapter 2), TVAAS has several critics (Bock et al., 1996; Kupermintz et al., 2001). It is possible that the methods used for calculating school gain scores are flawed.

Research Question 2

Few studies have qualitatively examined organizational health in schools (Brown et al., 2003; Henderson et al., 2005). The purpose of using qualitative data in this study was to answer the second research question, which asked, what is the nature of the relationship between organizational health and student achievement gains? In answering this question, qualitative data, gathered through interviews and observations, both confirmed and elaborated on the quantitative data. Data from interviews were consistent with the quantitative findings in the areas of academic emphasis, teacher affiliation, collegial leadership, and resource influence. The qualitative data were not consistent with the quantitative findings in the area of institutional integrity.

Discussion of the Findings for Research Question 2

Interview data expanded the findings from the survey. For example, the higher health schools tended to utilize tutoring programs. Schools with higher scores in collegial leadership were more apt to implement programs recommended by their teachers. Faculties with higher teacher affiliation scores saw themselves as families. Schools with

higher scores in resource influence had leaders who were seen by their faculty as people who got the job done, regardless of the circumstances. In contrast, schools with higher scores in institutional integrity had a more negative view of their external environment.

The inconsistency of the qualitative data with the scores in the area of institutional integrity could be due in part to the staff's perception of the external community. Instead of feeling a need to be protected from outside forces, the teachers and administrators seem to be searching for ways to gain more involvement from them. The concept of institutional integrity grew from the sociological concept of autonomy (Miles, 1969). This concept may need to be refined to better suit schools. While businesses have a clear interest in protecting themselves from external forces acting upon them, schools do not share such a need. In fact, greater involvement from external forces such as parents and community partners seems to benefit schools (Mau, 1997; Wang & Wildman, 1996). The qualitative findings from this study indicate that the area of institutional integrity may need to be rethought to take into account the positive impact that external actors can have on a school.

Implications for Future Research

The apparent discrepancy of the relationship between student achievement and organizational health and the relationship between student achievement gains and organizational health warrants further study. Given the wealth of value-added data that are available, a larger sample of schools would give a better indication of the nature of the relationship between student achievement gains and organizational health. Yet another area of beneficial study would examine the factors that a school possesses that

makes significant gains with their students, regardless of socioeconomic status. Furthermore, additional research into the area of institutional integrity in schools could be beneficial to the field of education.

Implications for Practitioners

Building level administrators can benefit from the findings of this study. First, they should become aware of the importance of regularly measuring the climate in their building. Several factors that affect student achievement fall outside of the control of the school. However, climate is one factor that has been demonstrated to affect student achievement that is within the control of the school. The area of academic emphasis particularly appears to have a strong impact on student achievement. Principals should take this into account and guide their schools with the knowledge that high but attainable expectations and an environment that respects knowledge can help lead to improved student performance. Yet another point for building level leaders to consider is their relationship with the parents and community that their school serves. Findings from this study suggest that schools with open, trusting relationships with community members, businesses, and parents have better success in transferring the benefits of those relationships to betterment of their students.

Recommendations

This study points to an interesting relationship between school climate and student achievement gains. I recommend that schools continue to follow the ideas of setting high, but attainable goals, growing close as a faculty, leading through team decisions, supplying teachers with materials that they need, and seeking positive

involvement from the community and parents. Schools cannot control all of the factors that effect the achievement of their students. Organizational health, however, is an element that has been shown to affect student achievement. It is measurable, and moreover, it is under the control of the leadership and staff of a school. Therefore, organizational health offers school practitioners a valuable avenue to improving student achievement.

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APPENDICES

Appendix A

Organizational Health Inventory–Elementary Version

ORGANIZATIONAL HEALTH INVENTORY-ELEMENTARY

DIRECTIONS: THE FOLLOWING ARE STATEMENTS ABOUT YOUR SCHOOL. PLEASE INDICATE THE EXTENT TO WHICH EACH STATEMENT CHARACTERIZES YOUR SCHOOL BY CIRCLING THE APPROPRIATE RESPONSE.

MARKING INSTRUCTIONS
Use a No. 2 pencil only.
Make dark marks that fill the oval completely.

RO=RARELY OCCURS SO=SOMETIMES OCCURS O=OFTEN OCCURS VFO=VERY FREQUENTLY OCCURS

	RO	SO	O	VFO
1. The principal explores all sides of topics and admits that other opinions exist				
2. The principal gets what he or she asks for from superiors				
3. The principal discusses classroom issues with teachers				
4. The principal accepts questions without appearing to snub or quash the teacher				
5. Extra materials are available if requested				
6. Students neglect to complete homework				
7. Students are cooperative during classroom instruction				
8. The school is vulnerable to outside pressures				
9. The principal is able to influence the actions of his or her superiors				
10. The principal treats all faculty members as his or her equal				
11. The principal goes out of his or her way to show appreciation to teachers				
12. Teachers are provided with adequate materials for their classrooms				
13. Teachers in this school like each other				
14. Community demands are accepted even when they are not consistent with the educational program				
15. The principal lets faculty know what is expected of them				
16. Teachers receive necessary classroom supplies				
17. The principal conducts meaningful evaluations				
18. Students respect others who get good grades				
19. Teachers feel pressure from the community				
20. The principal's recommendations are given serious consideration by his or her superiors				

RO=RARELY OCCURS SO=SOMETIMES OCCURS O=OFTEN OCCURS VFO=VERY FREQUENTLY OCCURS

	RO	SO	O	VFO
21. The principal maintains definite standards of performance	○	○	○	○
22. Supplementary materials are available for classroom use	○	○	○	○
23. Teachers exhibit friendliness to each other	○	○	○	○
24. Students seek extra work so they can get good grades	○	○	○	○
25. Select citizen groups are influential with the board	○	○	○	○
26. The principal looks out for the personal welfare of faculty members	○	○	○	○
27. Teachers express pride in their school	○	○	○	○
28. Teachers identify with the school	○	○	○	○
29. The school is open to the whims of the public	○	○	○	○
30. A few vocal parents can change school policy	○	○	○	○
31. Students try hard to improve on previous work	○	○	○	○
32. Teachers accomplish their jobs with enthusiasm	○	○	○	○
33. The learning environment is orderly and serious	○	○	○	○
34. The principal is friendly and approachable	○	○	○	○
35. There is a feeling of trust and confidence among the staff	○	○	○	○
36. Teachers show commitment to their students	○	○	○	○
37. Teachers are indifferent to each other	○	○	○	○

Appendix B

Permission to Conduct Research in Knox County Schools

KNOX COUNTY SCHOOLS
ANDREW JOHNSON BUILDING

Dr. Charles Q. Lindsey, Superintendent

April 13, 2006

Christopher L. Henderson
5529 Malachi Circle
Knoxville, TN 37918

Dear Mr. Henderson:

You are granted permission to contact appropriate building-level administrators concerning the conduct of your proposed research study entitled, "Organizational Health and Student Achievement Gains in Elementary Schools." In the Knox County schools final approval of any research study is contingent upon acceptance by the principals at the sites where the study will be conducted. Include a copy of this permission form when seeking approval from the principals.

In all research studies names of individuals, groups, or schools may not appear in the text of the study unless *specific* permission has been granted through this office. The principal researcher is required to furnish this office with one copy of the completed research document.

Good luck with your study. Do not hesitate to contact me if you need further assistance or clarification.

Yours truly,

Mike S. Winstead, Ph.D.
Coordinator of Research and Evaluation
Phone: (865) 594-1740
Fax: (865) 594-1709

P.O. Box 2188 • 912 South Gay Street • Knoxville, Tennessee 37901-2188 • Telephone (865) 594-1800

Appendix C

Institutional Review Board Approval Form

THE UNIVERSITY of TENNESSEE
Institutional Review Board
Office of Research
1534 White Avenue
Knoxville, TN 37996-1529
Phone: (865) 974-3466
Fax: (865) 974-7400

09/07/2006

IRB#: 7078 B

TITLE: Organizational Health and Student Achievement Gains in Elementary School

Henderson, Christopher
Theory & Practice in Teacher Education
5529 Malachi Circle
Knoxville, TN 37918

Anfara, Jr., Dr. Vincent A.
Theory & Practice in Teacher Education
A321 Claxton Complex
Campus

Your project listed above was reviewed and has been granted **conditional** approval under Expedited review. **The conditional approval is based on receipt of support letter from the participating school Principal(s).**

This approval is for a period ending one year from the date of this letter. Please make timely submission of renewal or prompt notification of project termination (see item #3 below).

Responsibilities of the investigator during the conduct of this project include the following:

1. To obtain prior approval from the Committee before instituting any changes in the project.
2. To retain signed consent forms from subjects for at least three years following completion of the project.
3. To submit a Form D to report changes in the project or to report termination at 12-month or less intervals.

The Committee wishes you every success in your research endeavor. This office will send you a renewal notice (Form R) prior to the anniversary or your approval date.

Sincerely,

Brenda Lawson
Compliances

Appendix D

Instructions for Administering the OHI-RE

Thank you for agreeing to administer the Organizational Health Inventory—Elementary Version to your school. The OHI-E is a survey about the climate of your school, and it should take between 10 and 15 minutes to complete. If you have any questions, please do not hesitate to contact me. My information appears below.

Please read the following directions to your staff when administering the OHI-E.

1. *This survey is being done for a study titled Organizational Health and Student Achievement Gains in Elementary Schools. This study is for the dissertation of Chris Henderson, an Administrative Assistant with Knox County Schools.*
2. *Please do not write your name or any other personally identifying information on this survey.*
3. *Your responses on this survey are completely anonymous.*
4. *Please read the following statements and fill in the circle under RO for Rarely Occurs, SO for Sometimes Occurs, O for Often Occurs, and V for Very Frequently Occurs.*
5. *Use a #2 pencil only, and make your marks heavy and dark.*
6. *Please be sure to respond to all 37 items. Also, note that there is a front and back side to this survey.*
7. *When you are finished with this survey, please place the completed form in the envelope.*
8. *Since these surveys will be scanned, please do not bend or fold the paper.*

Thank you very much for your help!

Included in this packet is a pre-addressed return envelop. Please place this envelop with the completed surveys and the consent form from the principal in the school mail to Chris Henderson, Halls Elementary School, Route #10. Please use the envelop provided, as it has a code on the label that I will use to identify which school the surveys are from.

If you have any questions, please feel free to contact me. Thank you again for your help.

Sincerely,

Chris Henderson
chender4@utk.edu
(865) 591-2074 (cell)
(865) 922-9158 (home)
(865) 922-7445 (work)

Appendix E

Permission for Use of the OHI-RE

From: WayneHoy@aol.com
Sent: Saturday, April 03, 2004 9:30 AM
To: henderson34@comcast.net
Subject: Re: Organizational Health Inventory

Hi Chris--

You have my permission to use the OHI-RE in your research. I will be especially interested in the results of your study. I think you will find that academic emphasis of the school will be significantly correlated with value-added achievement scores. You are planning a nice study. Please keep me apprised of your results.

As you likely know, the instrument is on my web site at www.coe.ohio-state.edu/whoy--just download the measure, make copies, and use it.

Good luck in your research.

Wayne

Wayne K. Hoy
Fawcett Professor of Educational Administration
The Ohio State University
www.coe.ohio-state.edu/whoy

Appendix F

Interview Protocol–Teacher

My name is …and I am conducting a study on schools as organizations for my dissertation. I appreciate your time and help with these questions.
How long have you been a teacher at this school? What other experiences have you had in education?

1. What is it like teaching at … school? *(grand tour)*
2. How do the teachers feel about each other at … school? *(teacher affiliation)*
3. How do the teachers feel about the students at … school? *(academic emphasis)*
4. Describe a time when you did not have adequate supplies. *(resource support)*
5. What sort of involvement do you get from the parents at this school? *(institutional integrity)*
6. Tell me about a time when the principal influenced his superiors for the good of the school. *(principal influence)*
7. How is the curriculum developed here? *(academic emphasis)*
8. How are students who have academic difficulty handled? *(academic emphasis)*
9. What is the relationship between the school and the community? *(institutional integrity)*
10. How were the goals of the school developed? *(collegial leadership)*
11. What standards should the students meet? *(academic emphasis)*
12. What makes you want (or not want) to teach at … school? *(teacher affiliation)*
13. What does the principal expect of you? *(collegial leadership)*
14. What does the principal expect of students? *(academic emphasis)*
15. What is the most important thing to know about this school?

Appendix G

Interview Protocol–Principal

My name is …and I am conducting a study on schools as organizations for my dissertation. I appreciate your time and help with these questions.
How long have you been principal at this school? What other experiences have you had in education?

1. What is it like being principal at … school? *(grand tour)*
2. How do the teachers relate to each other in this school? *(teacher affiliation)*
3. How do you handle requests for materials? *(resource support)*
4. What kind of relationship do you have with your superiors? *(principal influence)*
5. What word would describe the schools relationship with the community? *(institutional integrity)*
6. What process is used to modify the curriculum? *(academic emphasis)*
7. How are the parents involved at … school? *(institutional integrity)*
8. What is in place to support academically struggling students? *(academic emphasis)*
9. How do you interact with your superiors? *(principal influence)*
10. Describe a time when teachers worked together to accomplish a goal. *(teacher affiliation)*
11. How are the goals of the school established? *(collegial leadership)*
12. Describe a time when you implemented a teacher's suggestion. *(collegial leadership)*
13. How do you interact with your superiors? *(principal influence)*
14. What three things do I need to know about … school?

Appendix H

Observation Time Sheet

Academic Emphasis	Teacher Affiliation	Collegial Leadership	Resource Influence	Institutional Integrity

Appendix I

Project Information Sheet

Organizational Health and Student Achievement Gains in Elementary Schools

The purpose of this study is to explore the relationship among organizational health factors and student achievement gains. I will take a mixed-method approach in this study, using a dominant/less dominant QUAN/qual design. The population that I will study is the elementary schools of Knox County. The first phase of this study involves administering the Organizational Health Inventory—Elementary (OHI-RE) to the teachers and administrators of the elementary schools in the district. This is a 37 item, four point Likert survey developed by Wayne Hoy, currently of The Ohio State University. The survey should take between 10 and 15 minutes to complete. I will use the results from these surveys to explore the relationship among Organizational Health scores and the aggregate value-added achievement gains made in the schools for the 2005-2006 school year. Each school will appear in the final dissertation as a coded number. The relationship between these factors will be calculated using the Pearson Product Moment Correlation Coefficient.

After receiving the information from the OHI-RE, I plan to use the results to select four schools from within the system at which to perform interviews and observations. The purpose of this qualitative data collection is to verify and expand upon the data obtained in the surveys. I anticipate interviewing the principal and two to three randomly selected teachers at each of these four schools. The purpose of these interviews and observations is to verify the findings from the quantitative portion of the study as well as to expand upon them. These interviews should last approximately one hour. I will give a letter and number code to each interview participant to ensure their confidentiality. I will also remove any personally identifiable information from the transcripts so that their identity will be protected. Likewise, the schools at which I observe will be coded so as to protect their identity. During these observations, I will not interact with anyone, student or staff. I will simply be looking for indicators of good and poor health.

Appendix J

Qualitative Data Collection Site Information Letter

Your school has been selected from as a site for qualitative data collection from the schools that took the Organizational Health Inventory—Revised Elementary survey. I would like to come into your school to perform interviews and observations in order obtain a clearer picture of the organizational health in your building. I hope to interview you and two teachers, who will be randomly selected from your full time faculty. If you choose to participate, then each interview participant will receive an informed consent form for the interviews.

The observations that will take place will serve as data for my dissertation, *Organizational Health and Student Achievement Gains in Elementary Schools*. The purpose of this study is to explore the relationship between organizational health and student achievement gains in elementary schools.

The observations that I hope to perform in your building will be as un-obtrusive as possible. I hope to make one to two visits that last approximately one hour. I will simply be looking for indicators of the health of your building. I will document my observations with the attached time and note sheets. I will supplement these notations by writing in a field journal after each visit. I would like to observe hallways, the office, one or two classrooms, and a meeting if possible. I do not expect any special accommodations for these observations. I will attempt to blend in with the background as much as possible. I will not interact with students or staff members in any way. I will simply be there to watch.

VITA

Christopher Lee Henderson was born in Luray, Virginia. He completed undergraduate studies, majoring in ideas and values with a concentration in elementary education, at the University of Tennessee. He went on to complete a Master's degree at the University of Tennessee in elementary education. Out of college, Chris worked for seven years as a fifth grade teacher at Spring Hill Elementary School. Following this time in the classroom, Chris has served for two years as an administrative assistant at Halls Elementary School. He has since completed study for a Doctor of Education degree in education administration and policy studies.